

FEBRUARY 1921 ~ NO 181

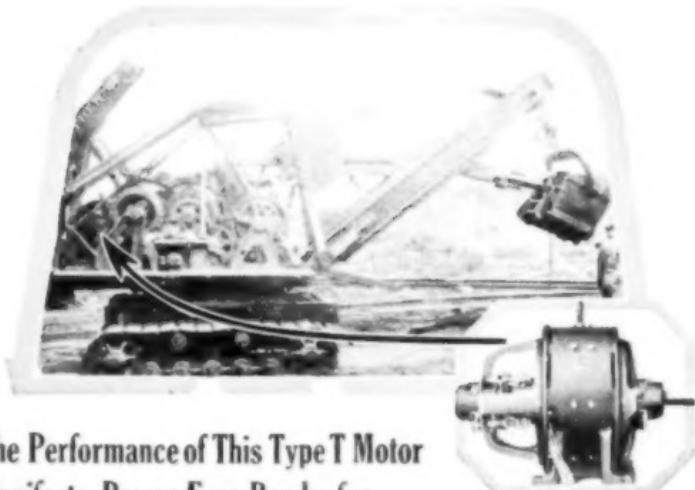
Monthly

A Reference for Buyers

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

Distributed Free to Machine Tool  
Users Everywhere in the United States and to  
Dealers in American Machinery Abroad

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago



## The Performance of This Type T Motor Manifests Power Ever-Ready for Continuous Heavy Duty Work

Dependable power is a prime essential in manufacturing on a small margin of profit.

A motor of unusual strength and endurance is vital. A Type T Motor's ability to operate this Thew Shovel day after day manifests reserve capacity ever-ready for sudden hard pulls. Working under unfavorable conditions and resisting the strain of frequent overloads this Type T Motor demonstrates the value of more and better material in vital parts—heavier shafts, more rugged brackets, field coils insulated for hard service and a commutator eight times improved. These improvements are the result of years of motor experience of 35 Electrical Engineers.

Independence from power trouble far outweighs first cost of a motor. Type T Motors are dependable power units.

*Write for facts of Type T Motor performance and Bulletin 2014.*

### Reliance Electric & Engineering Co.

1050 Ivanhoe Road, Cleveland, Ohio

#### Branches:

Boston New York Philadelphia Pittsburgh Cincinnati Detroit Chicago

We specialize in motors, sizes 1 2 to 150 h. p., constant and adjustable speed  
D. C., squirrel cage and slip ring A. C.

*Type T* Heavy Duty  
**RELIANCE MOTORS,**  
*Direct Current*

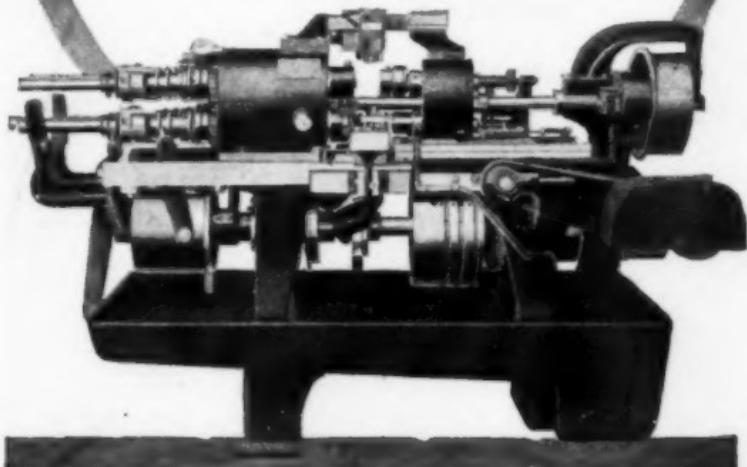




# ACME AUTOMATICS

It makes no difference whether your work calls for 2 operations or 10—whether it is rough parts or fine accuracies, Acme Multiple Spindle Automatics will meet the test.

A complete descriptive bulletin showing the application of Acmes to screw machine work is offered. Some of the new features will interest you.



## THE NATIONAL ACME COMPANY CLEVELAND, OHIO

New England Plant, Windsor, Vt.

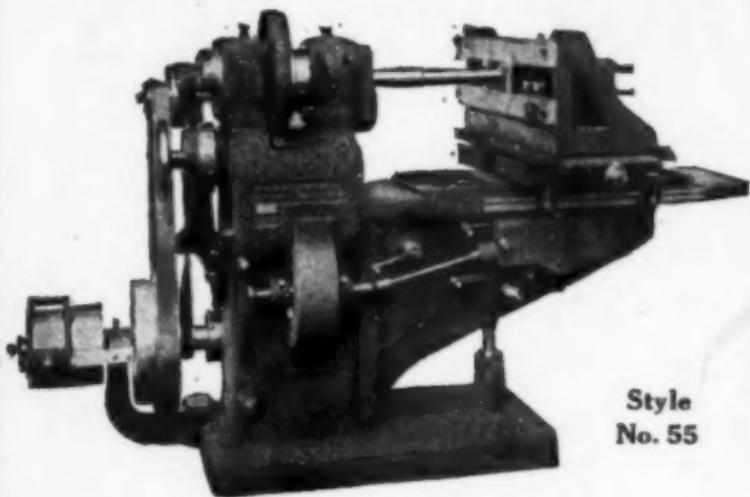
Canadian Screw Plant, Montreal, P. Q.

Branch Offices: NEW YORK BOSTON CHICAGO DETROIT BUFFALO

WAREHOUSES—NEW YORK and CHICAGO

REPRESENTATIVES IN PRINCIPAL FOREIGN COUNTRIES

# Moderately Priced



Style  
No. 55

## Cylinder Regrinding Machine

Simple

Heald Quality

Large Capacity

Self-Contained

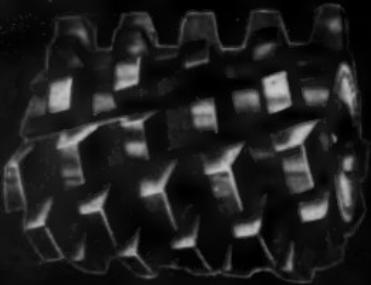
Built Expressly

For the regrinding trade. By eliminating expensive feed units it can be sold at a moderate price. Capable of handling all sizes and shapes of cylinders.

*Write for prices and description*

**The Heald Machine Co.**

Worcester, Mass.



**BROWN & SHARPE**  
GEAR WORM WHEEL - SPECIAL PURPOSE  
**HOBBS**

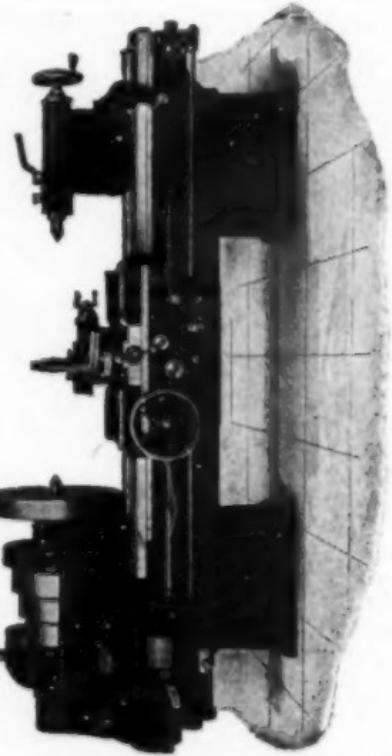
For Increased Production  
and Lowered Operating Costs.

Due to careful selection and  
local treatment of the steel used,  
coupled with the use of special  
machinery and skilled workmanship,  
it is possible to insure extreme accuracy,  
durability and consistent, uniform  
production.

Send for Catalog 23. Clothing  
Trade Catalog and Business  
Circulars. 3000 Catalogs.

**BROWN & SHARPE**  
MANUFACTURERS OF  
TOOLING AND MACHINERY

# SIDNEY LATHES—For All Requirements

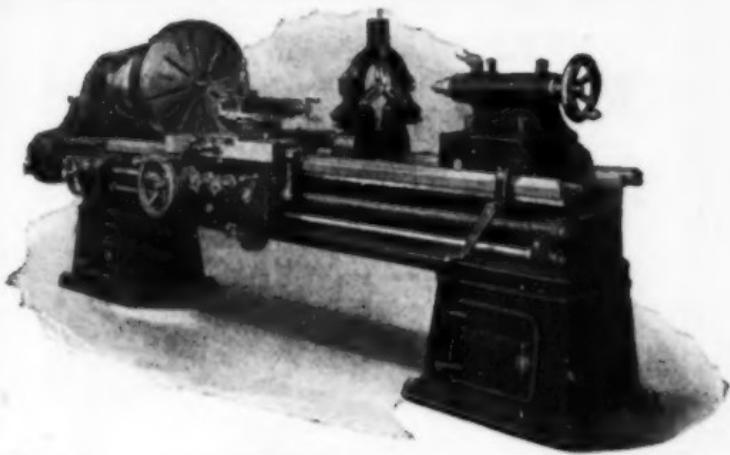


The Sidney Line of medium and heavy duty lathes includes a lathe for every class of work, regardless of the size or type of shop you are running.

Lathes of medium duty in 14, 16, 18 and 20-inch swings, and of heavy duty in 15, 17, 19, 25, 27, 30 and 36-inch swings.

*Send for Bulletin No. 45.*

**THE SIDNEY MACHINE TOOL CO.,** Sidney, Ohio



## Ryerson-Milwaukee 24-in. Heavy Duty Engine Lathe

The Ryerson-Milwaukee 24" Heavy Duty Engine Lathe is furnished with three-step cone drive and double back gearing, providing nine speeds. Four quick-change feeds are furnished in the gear box, these being entirely independent of the screw-cutting mechanism. The usual arrangement of independent change gears is used for screw cutting.

This lathe is of substantial design, the body being a semi-steel casting of deep section, firmly braced every two feet. Bronze bearings are provided in the head stock with adjustment for wear.

**In Stock for Immediate Shipment**

*At prices that will interest you*

### General Specifications

Swings		Hole Thru Spindle	Taper Hole in Spindle	Cuts Threads per inch	Takes Between Centers—Extreme			Approximate Net Weight, Lbs.		
Over Bed	Over Carriage	21"	No. 5	2 to 32	10' Bed	12' Bed	14' Bed	10' Bed	12' Bed	14' Bed
24 $\frac{1}{2}$ "	15 $\frac{1}{2}$ "	21"	No. 5	2 to 32	5' 4"	7' 4"	9' 4"	5,600	6,100	6,700

**JOSEPH T. RYERSON & SON**  
**MACHINERY**

CHICAGO

ST. LOUIS

DETROIT

BUFFALO

NEW YORK

## "LEHMANN LATHES"

Three Step Cone—Double Back Geared and Geared Head—Single Pulley Drive or Arranged for Motor Drive



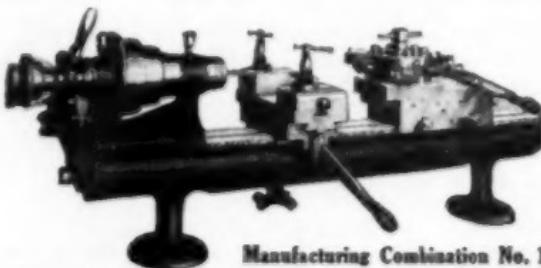
Five Sizes—14" to 24"

These are strictly high-grade engine lathes of superior design and thoroughly good workmanship and material. Built for accuracy and production.

*Write for complete specifications and details. Do it today—NOW.*

**LEHMANN MACHINE CO., 3562 Chouteau Ave., ST. LOUIS, U.S.A.**

## Potter's Bench Lathe And Valuable Attachments



Manufacturing Combination No. 1

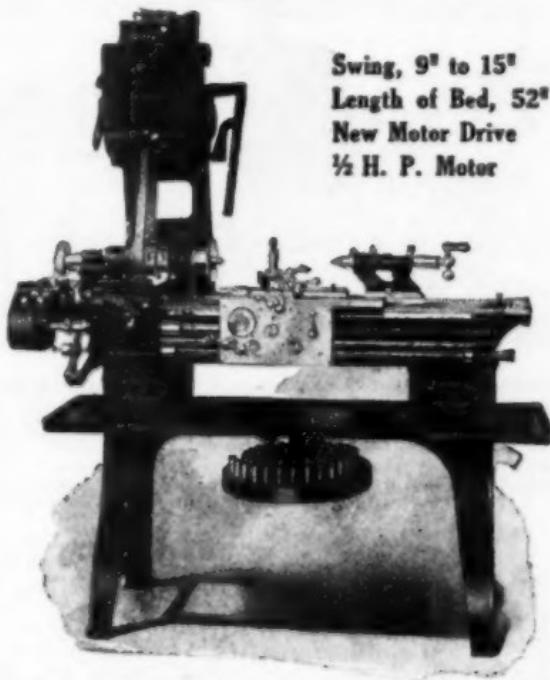
Furnished with or without double cross slide and large turret fixture, as shown in illustration, also attachments for milling, internal or traverse grinding, universal grinding and screw cutting, as well as compound slide rest, lever tailstock, tailstock turret, etc. A strong, dependable and versatile precision lathe which quantity production enables us to sell at a close price.

*May we send you the fully illustrated Catalog?*

**S. A. Potter Tool & Machine Works**  
71 East 130th St., New York City, N. Y., U. S. A.

*"There's nothing better than the best"*

## That Means, "THE HARDINGE" The Ideal Tool Room Lathe



Swing, 9" to 15"  
Length of Bed, 52"  
New Motor Drive  
½ H. P. Motor

Absolute precision, simplicity of operation and remarkable range of productive capacity are preeminently the vital qualities that make THE HARDINGE a Leader in Tool Room Lathe efficiency.

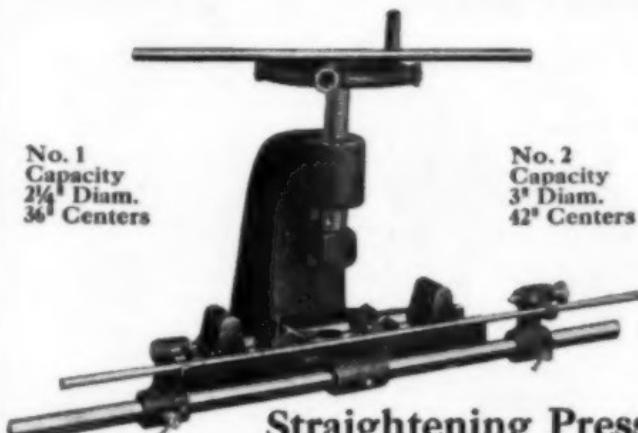
Swing can be raised 3" or more by raising blocks, greatly extending its range of production. A 60-hole index provides for cutting double, triple or quadruple screw threads.

THE HARDINGE represents the matured mechanical skill and experience of nearly Forty Years of specialized machine tool manufacture.

*Drop a Postal for Catalog giving full specifications and tables*

**HARDINGE BROTHERS, Inc., Chicago, Ill.**

## Two Invaluable Tools



### Straightening Press

An unusually handy tool in machine shops or garages for straightening shafts, arbors, reamers, boring bars, cam shafts, crankshafts, etc. Centers mounted on front of the press enables work to be tested without taking it to the lathe. Equipped with low blocks for straightening shafts. Gears, collars, etc., can be broached or pressed on or off. High grade steel screw.



### The "Utility" Screw Press

Straightens shafts, bars, rails, beams, etc. It can also press in or out bushings, and gears or wheels on and off shafts, and forms or bends metal in many shapes.

Massive bed 4' long has hole under screw to allow clearance for solid or hollow pressed pieces. High grade steel accurately chased.

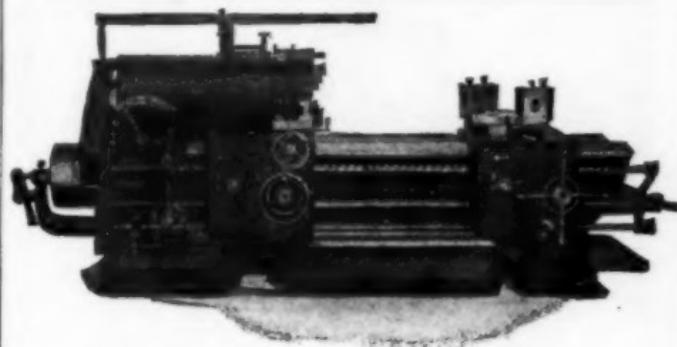
*Full data of these superior tools on request*

**Carl Pletz & Sons,** 3116 Spring Grove Ave.,  
Cincinnati, Ohio

# STEINLE TURRET MACHINE CO.

MADISON, WISCONSIN

Originators of the Heavy Duty Full Swing Side Carriage Turret Lathe



## PRE-EMINENTLY— A Manufacturing Machine. WHY?

The first and most important question is one of design, for good design must acknowledge the basic principles underlying the construction of a good machine tool which makes its proper operation entirely satisfactory to those benefiting through its use.

To duplicate a wide range of work rapidly, accurately and economically, the machine must have speeds sufficient to accommodate all diameters and character of work within the range of the machine, power to pull heaviest cuts within the capacity of the best cutting steels, reliability to withstand heavy continuous service day in and day out, facilities for simple or extensive tooling equipment, an ease of operation including power application to feeds and traverses, and convenient location of levers controlling the various functions.

These are a few of the superior features of the Steinle Full Swing Side Carriage Turret Lathe.

*May we furnish you with further details covering design or construction of our machine, together with tooling recommendations for the proper production of your work, or ask to have a qualified representative call in order to go personally and thoroughly into the question of what Steinle methods mean as applied to your production questions?*



## The WICKES BLUE PRINT SYSTEM

—is today being adopted by the WORLD'S largest industries.

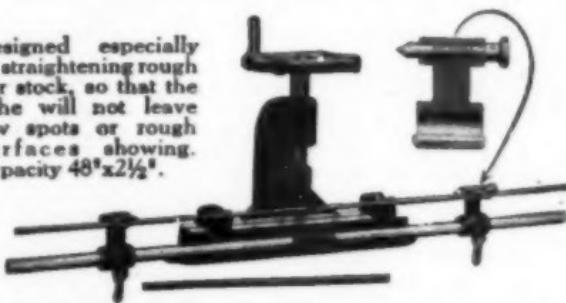
### WHY?

*Send us a request and we will tell you*

Wickes Bros.  
1802 Water St., Saginaw, Mich.  
*Builders of Heavy Machinery*

## "The Towsley" Straightens Bar Stock Easily, Quickly, Accurately

Designed especially for straightening rough bar stock, so that the lathe will not leave low spots or rough surfaces showing. Capacity 48" x 2½".



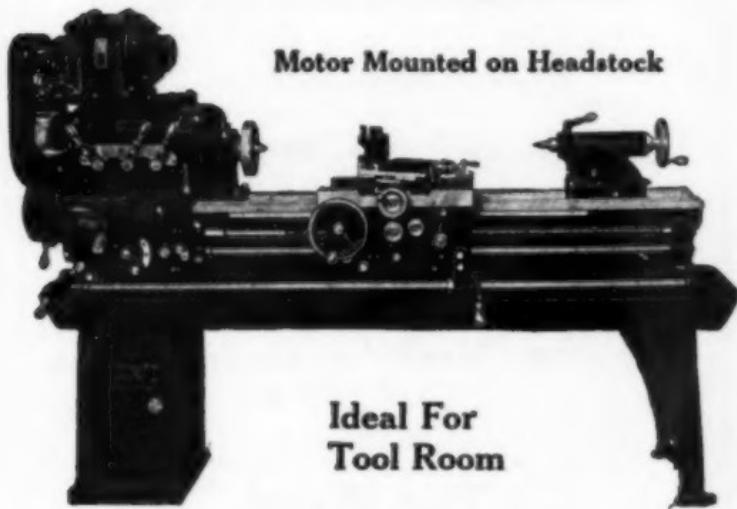
*Repair Work* also done on bent journals, shafting, axles, etc.  
*Special Work* done, as bending and pressing tubing, axles, etc.

*Gives big service at small cost. Write for full details*

**JOHN T. TOWSLEY MFG. CO., 1037 Woodrow St., CINCINNATI, OHIO**

# New Willard Maitman Bratten Improved Lathe

D. B. G., Q. C., All-Geared-Head  
13" High Power. Also Made 15" Swing



Motor Mounted on Headstock

Ideal For  
Tool Room

The NEW WILLARD, fully redesigned, leaves nothing to be desired as to precision and rigidity, enabling your men to do the widest variety of work with maximum speed and economy.

The headstock is a full box section, rugged and self-contained. All speed changes are selective and are made within the headstock. Only one speed can be engaged at one time. All gears are chrome nickel steel and all sliding gears are hardened. Chrome nickel steel spindle is forged and bored from the solid and guaranteed interchangeable.

Six different speeds are available, and six more thru back gears—TWELVE IN ALL. Rigidly accurate bed, with chilled V's and flats, throws practically all wear on the carriage. Top slide of compound rest is a steel casting, and is taper gibbed. Motor drive—D. C. or A. C. SKF bearings thruout headstock and pulley.

*We build WILLARD LATHES in ALL STYLES,  
and shall be glad to mail you full description*

**The Willard Machine Tool Co., Inc.**  
F Street, Box 784 - CINCINNATI, O., U. S. A.



**COLLETS**  
for  
**Lathes and Screw Machines**

**Any Size**

**Any Type**

**Any Quantity**

**Morrison Machine Products, Inc.**  
"Collet Specialists"  
Rochester, New York

**The Word**  
**"HARDINGE"**

Stamped on Screw Machine collets or  
draw-in chucks for tool room lathes

**Guarantees Accuracy**

**Look for the marking**

We can fill your single or quantity orders  
in Round, Square or Hexagon.

*When making inquiries refer to "Chuck Department"*

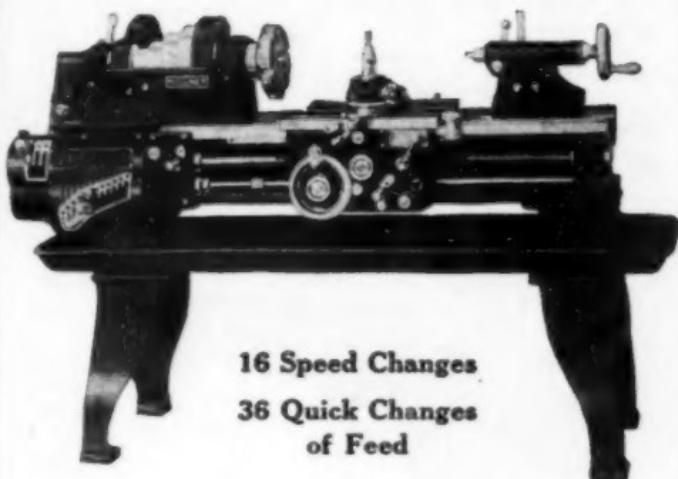
**Hardinge Brothers, Inc.**

1770 Berneau Ave.

Ravenswood

Chicago, Ill.

# Porter - Cable Tool Room Lathe



16 Speed Changes

36 Quick Changes  
of Feed

Its many special features, taken as a whole, fully establish the superiority of design of the Porter-Cable Tool Room Lathe for practical results.

As an example of its peculiar merit, get the folder and study the Lead Screw, its bearings, control and operation. We shall not attempt to fully describe it here; but suffice it to say that no gears are mounted on the Lead Screw itself, which is suspended on its own independent bearings. It is not splined nor used as a feed shaft. It is so arranged that it always rotates freely with a perfectly balanced motion, without end play, side strain, cramp or distortion. A convenient lever controls its operations.

*Let us send the folder—look it over at your leisure—  
You will find it interesting, instructive and profitable.*

**The Porter-Cable Machine Co.**  
Syracuse, N. Y.

# Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes**. Built in all styles and with any attachments desired.

**Sizes 10 to 30-inch Swing**

*Sold by a leading Machinery Dealer  
in every machinery center.*



**THE MONARCH MACHINE TOOL CO., 106 Oak St., SIDNEY, OHIO**



Bunting's "In Stock" Bushings afford a quick cut to economy and speed in machine production.

*Write for Stock List "W"*

**The Bunting Brass & Bronze Co.**  
*Factory at*  
**Toledo, Ohio**



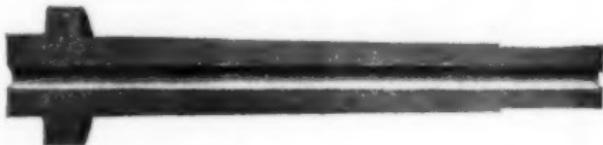
**Dies, Tools, Jigs, Gauges.  
Special Machinery, Ex-  
perimental Work and  
Manufacturing**

*Send us your Specifications*

**Screw Machine Products**

**GEO. H. AINGE TOOL, DIE  
AND MACHINE WORKS  
SPRINGFIELD, OHIO**

Do the Machines You Build Require  
**Hollow Bored forgings  
and Steel Shafts?**



If so, it may pay you to submit your blue prints and let us quote you on such items as Lathe Spindles, Piston Rods, Rams, Clutch Shafts, etc.

*Service You Can Depend On*

**American Hollow Boring Co.  
Erie, Penna.**



## Rhodes 7" Horizontal 3½" Vertical Shaper

The RHODES is applicable to a wide range of accurate machining. For light shaping and slotting where accuracy counts, the RHODES is the thing. Small in size, low in upkeep, big in economy.

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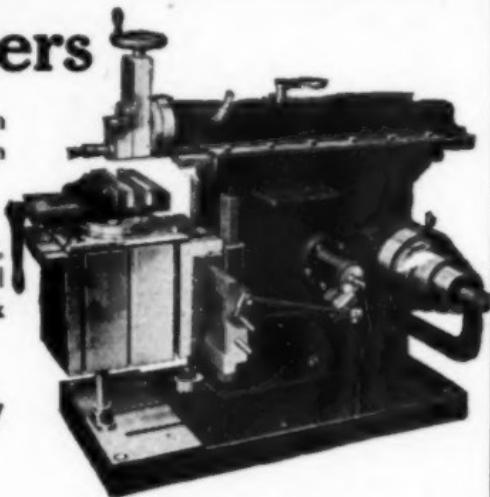
The Rhodes Mfg. Company  
Hartford, Conn.

# Shapers

The best medium priced Shaper on the market.

Built in 16", 20", and 24" sizes, all back geared crank machines.

A few for early delivery.



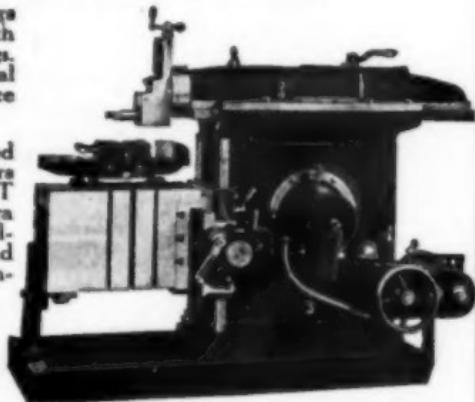
**The Osborne & Sexton Mch. Co.**  
Columbus, Ohio

## Columbia High Grade Shapers Extra Heavy Duty

Main shaft bearings are ring oiling, with renewable bushings. Other cylindrical bearings bronze bushed.

Selective gear speed box and back gears provide EIGHT SPEEDS. Extra large table, centralized control and many other advantages.

Styles 16", 20",  
24", 28" and 32".  
Write for Bulletin  
No. 7.



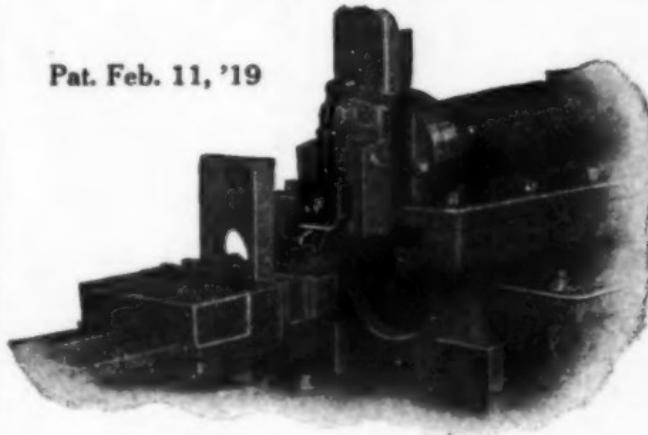
**The Columbia Machine Tool Company**  
Hamilton, Ohio

# **BRUNO**

## **Slotting Attachment**

**for Shaper and Planer**

**Pat. Feb. 11, '19**



A cutting tool holder which converts your shaper into a Horizontal Slotter and makes possible the most intricate shaping such as is required for dies, jigs, gauges, keyways, slotting, etc.

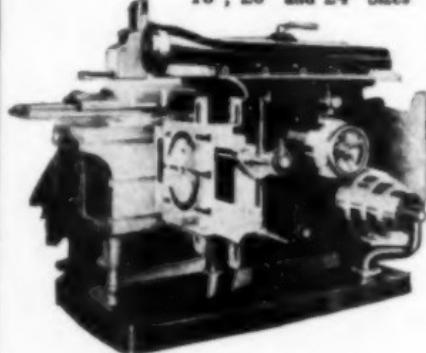
*Write for circular. Dept. H.*

**H. A. MOORE CO.**  
**ROCHESTER, N. Y., U. S. A.**

# The Milwaukee

A Powerful and Productive Shaper

To 16", 20" and 24" Sizes



The stroke of this modern back geared crank shaper is simple, positive and instantly adjustable. Friction locking device is positive and thoroughly effective. Ram is rugged with wide bearing, V-shaped ribs and acts smoothly without chatter. Graduated tool head swivels at any angle and the down feed has micrometer adjustment.

*Folder on request*

MILWAUKEE SHAPER CO.,

Milwaukee, Wis.

## SHAPERS

12", 14", 16"  
Plain Crank,  
16", 20", 25"  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

28" and 32"  
Back Gearing  
Crank,  
Single Pulley Drive.



The Smith & Mills Co. Station B,  
Cincinnati, O., U.S.A.

# WEAVER

## Forcing Presses



are saving time  
and money and  
improving the  
quality of work  
in thousands of

Garages  
Electric  
Shops  
Machine  
Shops  
*and*  
Factories

because of their wide range of application to both  
bulky and small work, due to their

**Great Depth Adjustment  
Quick Release Feature  
and Enormous Leverage**

enabling the operator to exert a pressure of 28 tons  
without assistance. For complete description and  
prices, write for catalogue.

**WEAVER MFG. CO.**

HARVARD PARK,

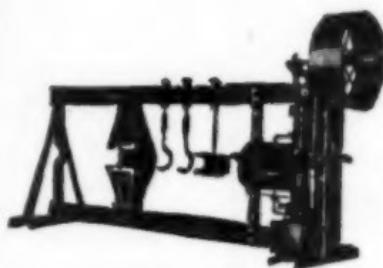
SPRINGFIELD, ILLINOIS



## Lourie Hydraulic Presses

Are Known the World Over

We manufacture a complete  
line of standard hydraulic  
presses.



We also make  
special presses.

*Write for catalog*

Lourie Mfg. Co.  
Springfield, Ill.

## Atlas Presses

pay for themselves  
quicker today than  
ever before.

Built in all sizes for all  
work which can be  
practically accom-  
plished by hand.

**Atlas Press Co.**

Kalamazoo, Mich., U. S. A.



# Don't Knock!

Do Your Pressing In An Easy,  
Civilized, "Greenerd Arbor" Way



Your Choice  
from  
**15 Pounds**  
to  
**40 Tons**  
Pressure

THE POWER, handiness and dependability of Greenerd Arbor Presses enables users to save time, material and labor. They are used universally with great satisfaction in plants of every size, and in repair shops and garages. They are good for very small work, and in heavy service have taken the place of hydraulic presses. The economy is obvious.

*Complete, illustrated information on request*

EDWIN E. BARTLETT  
NASHUA, NEW HAMPSHIRE



**Knickerbocker asks you  
to note the reasons why  
engineers order "Rarefied"  
Dust Collectors installed:—**

- Q Because they are more efficient.
- Q Because they are longer lived.
- Q Because their cost is moderate.
- Q Because they cost less for upkeep and repairs.

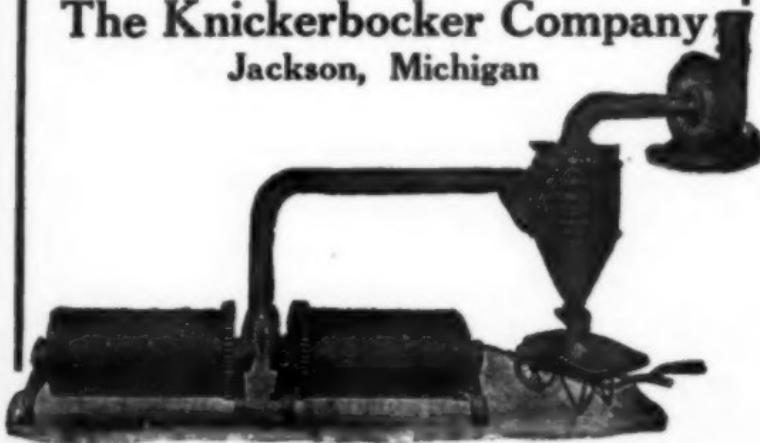
Solvay Process Co. now uses.....	26
Western Electric Co. now uses.....	12
Westinghouse Elec. & Mfg. Co. now uses.....	21
Weston-Mott Co. now uses.....	12
Willis-Overland Co. now uses.....	10

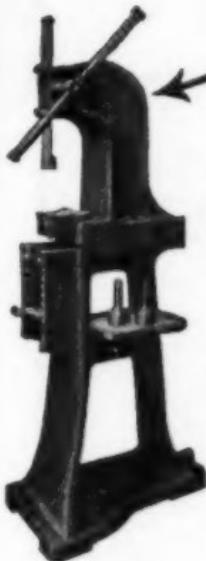
And there are many other users.

The "Rarefied" Dust Collector operates on the "rarefied" or partial vacuum principle. Expert engineers have ordered their installation after exhaustive tests. They are successful with the most difficult dust.

*To help you understand the merits of this modern dust collector we would like to send you a copy of our explanatory Booklet. Send us your address today.*

**The Knickerbocker Company**  
**Jackson, Michigan**





*See that  
strengthening  
rib!*

Nicholson Arbor Presses are built to endure the hardest sort of machine shop service. Frames of best semi-steel, racks, pinions and levers of heat-treated chrome-nickel steel—sturdy and compact—they last for years. Made in five sizes, and of course they're useful for many other sorts of work besides pressing out arbors.

## Nicholson Expanding Mandrels

Just nine of them to a set—and they instantly fit *any* hole, round or square, from  $\frac{1}{2}$ " to 7". If you're using solid mandrels now, you can figure for yourself the saving in time, labor, and storage space a set of these would effect in your shop.

*Details and prices of these and other  
Nicholson products on request.*

**W. H. Nicholson & Co.**

117 Oregon St.,

Wilkes-Barre, Pa.

*Agencies:*

BURTON, GRIFFITH & CO., Ltd.  
Ludgate Square, London, E. C.

BURTON FILS  
58 Rue des Marais,  
Paris, France

MONTI & OSCURO  
Milano, Italy

ANDREWS-GEORGE CO.  
16 Takegiwa-Cho, Kiobashi-Ku  
Tokyo, Japan



# Our Pipe Benders Meet The Demand



Ever since their invention our hand Pipe Benders have had a steady sale and have given universal satisfaction.

Recently, we have made some improved attachments that permit of a wider range of work and open up a new field in the kind of bending the machine will accomplish.

If you do pipe bending you will find our machine an economical, simple and very efficient appliance in reducing costs and doing better work. For 2" and under.

*We have a Bulletin waiting for you. Send for it now.*

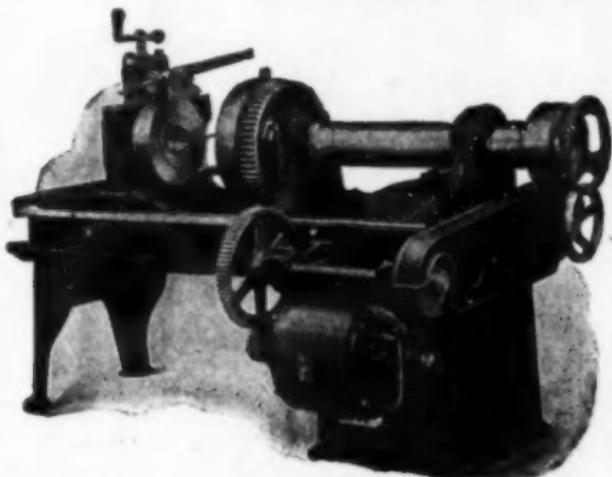
**Pedrick Tool & Machine Co.**

**3644 N. Lawrence St., Philadelphia, Pa.**

Manufacturers of Cylinder Boring Bars, Portable Millers, Crank Pin Turning Machines, etc.

# Pipe Threading Costs

Are Kept at the Very Lowest Point  
With the Top-Notch "B. & K" Machines



(No. 3 Peerless. All Gears are Covered)

Our pipe threading and cutting machines have been standard for more than a third of a century. They are improved up to the minute—practical features that augment the quantity and quality of output.

There are 17 styles and sizes from which to make a selection—you are sure of getting the machine best suited to your work.

Let us tell you about their speed and accuracy, their many conveniences, and their ability to stand up to the most strenuous demands of modern manufacturing.

**Bignall & Keeler Machine Works**

Edwardsville, Illinois

## Figure the Labor Cost and You'll Find It Will Pay to Install a Paragon Blue Printing Machine

Paragon Machines make excellent blue prints *fast*. That's why they are profitable. Even though you have only a limited quantity of blue prints to make, this machine pays; it quickly releases the man who runs it for other work, filing, etc.—and the amount of labor it saves is what makes any machine profitable.



Blue Print  
Machine

Paragon time is *four minutes* for a good, clear, permanent, dried and ironed blue print—ready for use.

*Ask for catalog Y and more details*

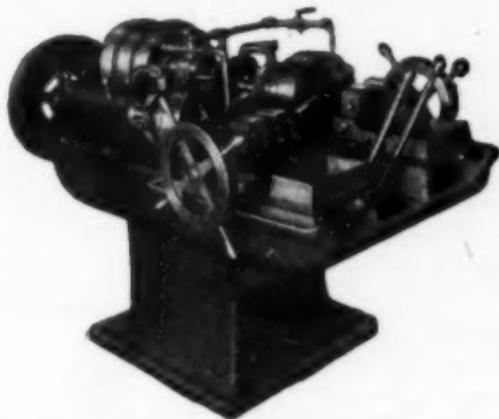


Print Drying  
Machine

**PARAGON MACHINE COMPANY, ROCHESTER, N. Y.**

# The Murchey Pipe Threader

Multiples Threading Production



One man on the Murchey Semi-Automatic Double Head Nipple and Pipe Threading Machine cuts 3,000 to 3,500 standard 1-inch threads or 1,800 nipples in 10 hours.

Reams and threads in one operation. Dies open automatically. Belt or motor drive.

Once cut is started, the machine needs no attention. This permits operator to run a number of Murchey Pipe Threaders at full capacity, multiplying the output of one man several times over.

*Catalog and Price on request*

**Murchey Machine & Tool Co.**  
850 Porter Street, Detroit, Mich.

NEW YORK OFFICE

99 Warren Street

CLEVELAND OFFICE

1625 Williamson Bldg.

PITTSBURGH Representatives,

Laughlin & Barney, 819 Wabash Bldg.

CHICAGO Representatives,

R. E. Ellis Engineering Co., 621 Washington Blvd.

LOS ANGELES Representatives,

Harron, Rickard & McCone, 225 So. San Pedro St.

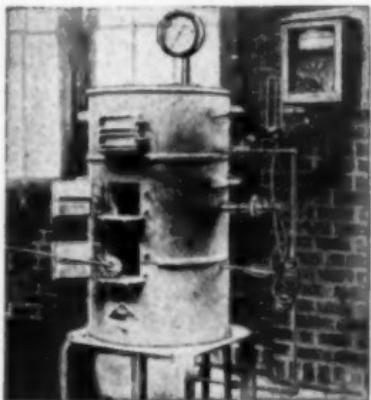
Coats Machine Tool Company, 14 Palmer St., Westminster, London, S. W., England

Fenwick Freres & Company,

8 Rue de Recroy, Paris

# The Triad 3-in-1 Furnace

## Cuts Fuel Costs 65%



Combines THREE different heat-treating operations in one furnace: (1) pre-heating, (2) high heating, and (3) drawing the temper. This saves floor space, labor and fuel costs—the latter 65%.

Burns oil or gas—position of burner avoids "back-firing." You can get maximum heat in twenty minutes. There are no cold corners.

*The TRIAD gives you 100% heat-treating efficiency and a mighty big slash in output costs.*

*Catalog 5 on request*

**The W. R. Bennett Co., P. O. Drawer X  
Elmwood, Conn.**



Style "C"



The Hinge



Style "B"



Style "G"



Style "O"



Style "Y"



Style "L"



Style "T"

### GITS OIL CUPS

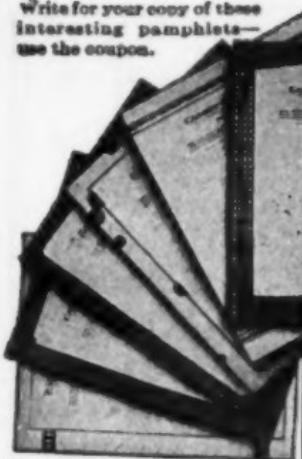
Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

**GITS BROS. MFG. CO.  
1940 SO. KILBOURN AVE., CHICAGO**



Style "H"

Write for your copy of these interesting pamphlets—use the coupon.



Check name you are interested in:

Floor Drills     Pugmills     Wall or Post Drills  
 Automatic Feeders     Grinders and Cleaners  
 Stoves     Blowers. Pneumatic Works, Massachusetts

Name \_\_\_\_\_  
Address \_\_\_\_\_



No. 38 Power Drill  
20 inch with back gear;  
power feed;  
automatic stop.  
Morse taper  
spindle socket  
No. 3 or No. 4.



No. 18 Post Drill  
Hand lever  
feed; positive  
self feed; ad-  
justable table.  
Bores 0 to 1 1/4  
in. to center  
of 24-in. circle



No. 4 Grinder  
Wheel guards;  
tight-and-loose  
pulleys; with  
or without rests  
as specified.

No. 8 Blower  
Electric driven;  
dust-proof  
automatic  
lubrication;  
seven speed  
switch.

## Canedy-Otto Forges

have a world-wide reputation for strength, simplicity, economy and long service. They are forges designed by men who know your needs and built by men who have acquired unusual skill in a plant that has dominated the industry for 30 years.

### CANEDY-OTTO EQUIPMENT

—famous for this quality of in-built service and a certain "handiness" that is appreciated by the man at the bench, whose efficiency and productiveness are increased by the use of these fine tools.

Canedy-Otto Mfg. Company  
Chicago Heights, Ill.  
Dept. HMT



Tiger Forges  
No. 263

Large fire pot;  
convenient  
hearth; splendid  
blast; strong  
construction; for  
severe service

## 100% Perfect Tool Lubrication Insured By ROLLWAY Pumps



Made in Semi-Positive and Positive Types. They deliver 30% greater volume than other types for size of intake and outlet.

They are valveless, self-priming, have no loss of prime, and do not clog. They require no relief or check valves and no overflow piping. Pump oil or water equally well. Operate at low speeds.

*Why not let it save your costly cutting tools?*

**Michigan Machine Co., Detroit,  
Michigan**

## A Gas-Electric Blow Torch

in your shop is just as useful for heating applications, as a lathe is for general machine work.

It takes only a few minutes to install.

Will replace your forge, and take the place of high priced furnace equipment.

Write for a descriptive folder or have us send a torch for trial in your shop.

If you have no gas, ask about our KEROSENE FLAMEBLAST torch; it will do the same work.

**The North American Mfg. Co.  
5902 Carnegie Av., Cleveland, Ohio**





# S-C-H Furnace No. 200

For production  
work in hardening  
steel in lead.

**T**HIS furnace contains two elliptical pots, each 6"x 12"x13" deep. Each pot has separate, independent burners which may be adjusted to hold the pots at the proper temperatures. The port venting the surplus heat may be fitted with a rack for preheating. By gradually heating the work in this manner it is treated without shock or strain.

For successfully heat-treating reamers, taps, thread-cutting dies and tools with sharp edges, or other work which might be harmed by oxidation, this furnace is unexcelled.

*Catalog 12-H gives a complete description of the S-C-H line of 75 heat-treating furnaces. Copy sent on request.*

## THE STRONG, CARLISLE & HAMMOND COMPANY

CLEVELAND, OHIO

Branches:

Boston      New York      Chicago      Philadelphia      Detroit



# Tucker Oil Hole Covers

Pat. Mar. 30-1915



Style G, Closed



Style G, Open



Style C



Style F, Drive



Style B



Rotary Head



Style D, Open

**W.C. & F.C. TUCKER, Hartford, Conn.**

# Make *this* case your own!

## FERRO CASE

**Carbonizes all kinds of steel**

After you have given Ferro Case a fair trial in your shop, you will turn your back on cyanide forever. Ferro Case carbonizes at a lower temperature, thereby avoiding coarse crystallization, warping and wear of furnace linings and crucibles. With greater economy you obtain a better, cleaner, glass-hard case. Moreover

**It's a Non-Poisonous Compound**

scientifically prepared, which does not lose its effectiveness with age or chemical action, and can therefore be stocked freely without any danger of deterioration.

Ferro Case M is for use in the cyanide melting furnace, and is handled the same way.

Ferro Case S is for sprinkling on hot steel. In either case you get better results in absolute safety.

*You will profit by making it your own  
case. Mail us that trial order today.*

**C. G. Buchanan Chemical Co.**

Sta. H.,

Cincinnati, Ohio

# New Silver 20" Drill

Stronger—Larger—Heavier

An ALL-PURPOSE Drill  
Made in Four Styles

- (1) Plain Lever Feed.
- (2) Combined Lever and Wheel Feed.
- (3) Power Feed and Automatic Stop.
- (4) Power Feed with Back Gearing and Automatic Stop.



	New Style	Old Style
Height.....	75"	68 1/4"
Vertical Travel of Spindle.....	12"	10"
Vertical Travel of Table.....	17 1/4"	16"
Distance from Spindle to Base.....	42 1/4"	41 1/4"
Distance from Spindle to Table.....	28 1/2"	26 1/2"
Shipping Weight.....	860 lbs.	780 lbs.

Our old-style 20" has been a standard drill for many years. The new one creates a NEW standard for all-around efficiency in both tool room and shop. The 12" spindle traverse and the fact that both base and table are planed absolutely square with spindle, adapt it to accurate repair work, such as re-boring cylinders. Spindle thrust has SKF ball bearings.

*Write for complete description of this NEW standard drill*

**The Silver Manufacturing Co.**

Box 295, Salem, Ohio, U. S. A. Founded 1854

LONDON PARIS BRUSSELS NEW YORK GENOA SYDNEY CAPE TOWN

# **Model "E-50"**

## **Sensitive Bench Drill Press**

This 2-speed, direct motor drive, high-speed ball bearing drill is especially designed to care for all work, ranging from the smallest to a  $\frac{1}{4}$ " hole.

Standard speeds 2,100 and 6,000  
R.P.M.

Main spindle is heat treated and ground to size; it is guided through a quill with support at each end in an annular ball bearing.

End thrust is taken up by an end thrust ball bearing under feed arm.

A quick adjustable table has a working surface  $5\frac{1}{2}'' \times 5''$ , and will take work up to  $4\frac{3}{4}''$  in height.

Surface of table is ground to insure accuracy.

Table has a self-cleaning taper, which keeps the precisely ground main column free from chips, and serves also as a guard to prevent injury to column.

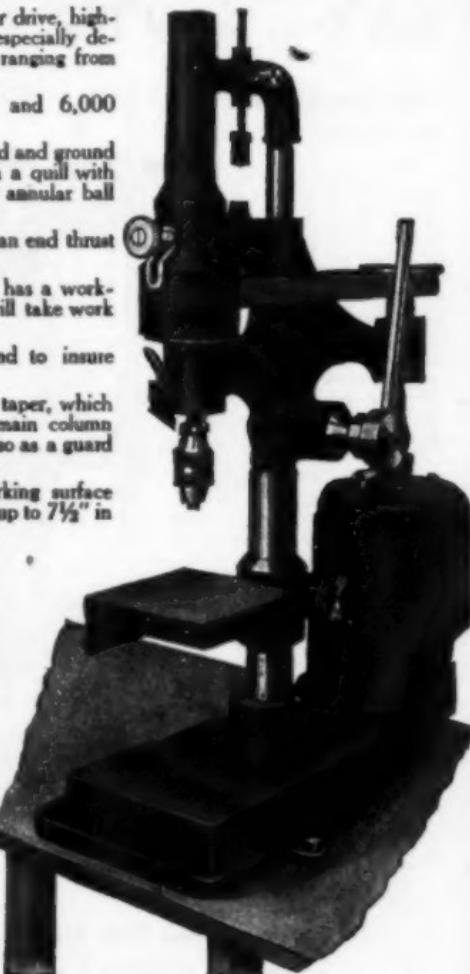
Base has a ground working surface 4"x6", and will take work up to 7½" in height.

Base has oil groove and self-cleaning column support.

Your attention is called to another special feature, which is a spindle lock enabling quick changes of drills without the operator's hands coming in contact with belt or pulleys.

An idler pulley takes up any belt stretch which may occur in the endless woven canvas belt, without impairing sensitiveness of machine.

Front pulley and upper part of spindle are guarded by a semi-tubular guard insuring safety. Machine may be operated either by hand or foot control.



Height over all.....	24"	Spindle feed.....	2¼"
Base.....	7½" x 18"	Weight.....	62 lbs.
Diameter of spindle.....	7/16"	Will drill to center of a 6" circle.	

# The High Speed Hammer Co., Inc.

# Aurora Sliding Head Drill

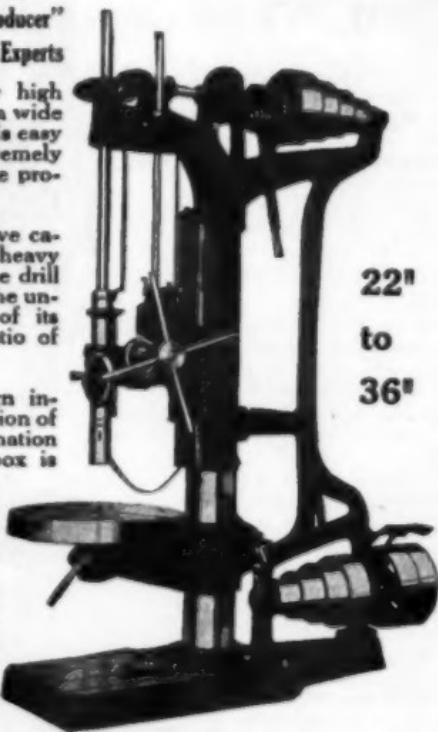
## Back Gear, Geared Feed, Automatic Stop

"An Unrivalled Producer"  
Say Machine Tool Experts

This heavy duty high speed Drill affords a wide range of operation, is easy to manipulate, is extremely accurate and a large producer.

Its great productive capacity, due to its heavy pulling power at the drill point, results from the unusually large size of its pulleys and the ratio of gearing.

Its massive design insures equal distribution of all strains and elimination of chatter. Feed box is adapted as lubricating tank—holding enough lubricator for over a month. Area of table arm bearing entirely prevents table from tilting, should bearing remain unclamped—avoids making imperfect holes. Latest Tapping Attachment.



Watch the PULL at the Aurora's drill point

*Here's supreme Drill Press Value at an  
unusually attractive price. Write—*

## The Aurora Tool Works

Aurora, Indiana, U. S. A.

# *Avey* No. 3

## Heavy Duty Ball Bearing Drilling Machine

Designed for quantity and quality production on all classes of drilling. Much higher speeds can be obtained than ordinarily used for holes from  $\frac{3}{4}$  in. to  $1\frac{1}{8}$  in., which, combined with finer feeds, make a production increase of from 25 to 50% possible.

Built in combinations of one to six spindles with plain hand or power feed. Ball bearings throughout.



Our No. 3 machine provides maximum speeds for work up to  $1\frac{1}{8}$ "

*Write for Bulletin containing details*

**The Avey Drilling Machine Co.**  
Cincinnati, Ohio



## Accurate Work from a Heavy Drill

The Rockford Mechanic's Drill is a heavy machine built to stand the strain of continuous accurate service. It has a wide range of speeds and feeds that adapts it to any kind of job going through the shop.

These are its dependable features:

**Sliding Head  
Back Geared**

**Positive Feed  
Automatic Stop**

There is more to the story of this drill. Write us for further details.

Made by the Rockford Machine Tool Company, Rockford, Ill.

Distributed by

**The Fairbanks Company**  
Administrative Offices, NEW YORK

*Branch Houses*

Albany  
Baltimore  
Birmingham  
Boston  
Bridgeport

Buffalo  
Chicago  
Cleveland  
Detroit  
Hartford

Newark  
New Orleans  
New York  
Paterson

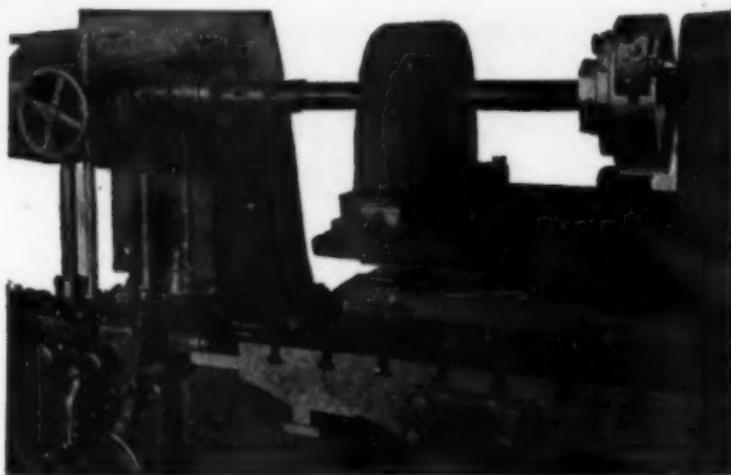
Philadelphia  
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St. Louis  
Syracuse  
Utica  
Washington

*The*  
**FAIRBANKS**  
*Company*

Fairbanks, Morse & Whitney, Hobart, Bagdad & Powers, Farnham, 1888, Hobart & Whitney Supplies, Automobile Repair Equipment, Locomotive Electrical Motors, Manufacturing Tools, Diesel Powerhouse Equipment.





## Mummert-Dixon Facing Heads In Operation on a Boring Mill

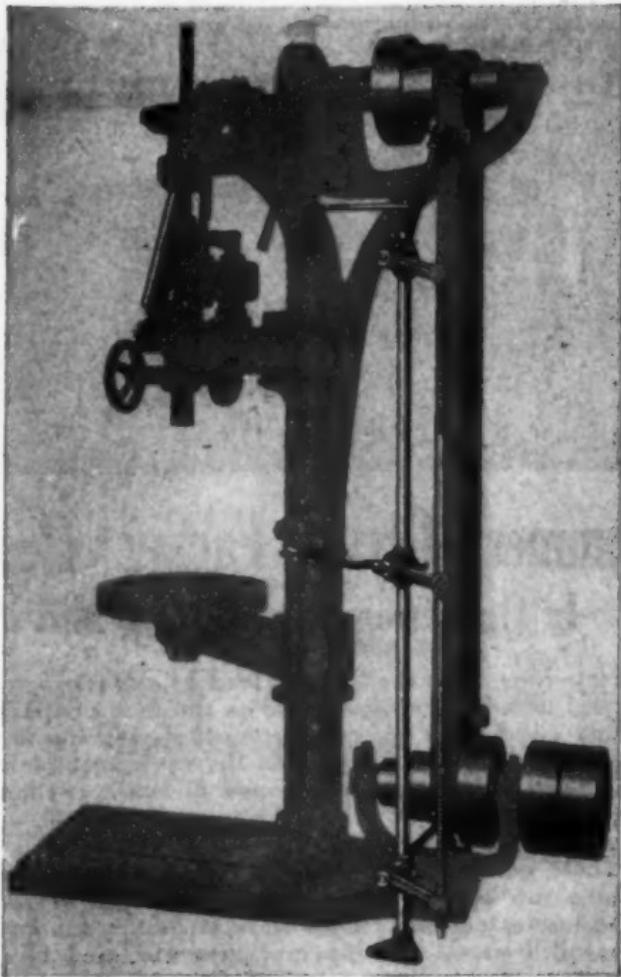
Note how easily the Facing Head adjusts for this work. The tool is fed automatically across the face of the head, working either in or out, completing the operation without change or adjustment. It will do the work accurately and at the same time more quickly and at less cost than any other tool or set-up.

These heads are made in six different sizes, and are available for use on any machine carrying a spindle or that will operate a bar. They work on lathes, milling machines, drill presses, boring machines, etc., and in every case show a decided economy in time used and in the cost of the operation. The ordinary lathe tool is used, and the operation is in effect the same as facing on the lathe.

The virtue in these facing heads is their economy of time and cost. If you will let us, we shall be glad to show you how they can expedite your work and save you money.

*Let us have your address, please*

**MUMMERT-DIXON CO., Hanover, Pa.**



Instant changes of speed for  
drill presses increase production  
and reduce compensation to injured  
employees.

*Details in Circular H-D*

**The Kremer-Cummins Machine Company**

1833-35 East 55th St., Cleveland, Ohio

*Thos*

# Portable Electric Drills

No. 0

3/8-inch  
Drilling Capacity



Jacobs Chucks furnished as  
regular equipment

*Ask for Circular No. 33*

Indispensable for all kinds of  
drilling, reaming and wood-  
boring in the building of  
steel and wooden cars, boil-  
ers, automobiles, auto bodies  
and in railroad and structural  
shops and for machinery  
repairs.

Agents Wanted

## Independent Pneumatic Tool Company

Chicago, New York, Philadelphia, Pittsburgh, Cleveland, Boston,  
Detroit, St. Louis, San Francisco, Birmingham, Montreal, Toronto

**Well deserved popularity is a great thing. The**

## **MUELLER RADIAL DRILL**

by its all around efficiency has gained for itself the reputation—both with operator and production manager—of being a pretty good tool to have in the shop.

Why, do you suppose, do both operator and production manager think so highly of the MUELLER Radial Drill?

Surely there must be a good reason.

There is.

*Ask*

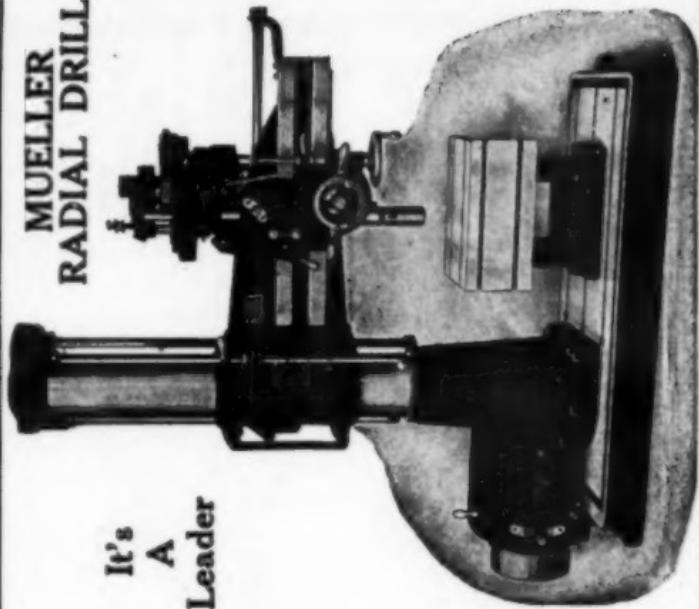
**The Mueller Machine Tool Company**

Radial Drills and Lathes.

**ESTABLISHED 1902 CINCINNATI, O.**

## **MUELLER RADIAL DRILL**

**It's  
A  
Leader**



# The Edlund Sensitive Drilling Machine

## Rigid—Powerful—Economical



maximum output at lowest costs is thereby assured.

The frame is a rugged one-piece casting and has an extra large bearing surface, insuring complete rigidity. The large diameters of cone and drive pulleys afford exceptional cutting power at drill point. Being fitted with ball bearings throughout—ten to a spindle—reduces strain and friction to a minimum and allows easy, silent, velvet motion.

"EDLUNDS" are built in combinations from one to six spindles. Power is transmitted through two bevel gears, a vertical shaft and a straight endless belt. The four speed changes are instantly made without stopping machine.

Combining the best features of the modern drill press with its own exclusive improvements, maximum output at lowest costs is thereby assured.

*For complete description send for our illustrated folder*

**Edlund Machinery Company, Inc.**

260 Huntington Ave.,

Cortland, N. Y., U. S. A.

At one setting of the work

## Turner Turret

completes a series of operations! Rotation of turret is automatic—when spindle is returned to its full height, it automatically indexes to the next spindle. Its reversing tap holder backs out automatically when the required depth is reached. Cost of duplicate parts is cut deep. Built with 4 to 12 spindles and to order.



*Write for bulletin FH*

**Turner Machine Company,** DANBURY, CONN.  
and Newark, N. J.

Incorporated with Turner, Atherton & Co., Ltd., Denton, Manchester and Stockport, England



## P. & H. Drilling and Boring Machine

For Large and Difficult Pieces

This P. & H. Horizontal Drilling and Boring Machine was invented for use in our own plant to drill and bore on long and bulky sections of cranes, hoists and monorail pieces—and other parts awkward to handle on the average type of machine. It has emphatically made good for this special class of work. It offers equal value to other firms engaged in the above or similar lines of manufacture. *We are passing a good thing along.*

Speed variations for a. c. current,  
12 to 542 r. p. m.; for d. c. 10 to 445.

Tell us about your horizontal drilling problems.  
We may be able to help you out. Drop us a postal.

**Pawling & Harnischfeger Company**  
Milwaukee, Wisconsin



# Henry & Wright Drilling Machines

with  
1 to 8  
Spindles  
for  $\frac{3}{4}$ "  
Drills and  
Smaller

Business conditions necessitate the closest economy in shop costs. Henry & Wright's, with their gearless power transmission and frictionless bearings, have reduced drilling costs far below the ordinary. There are 252 Varieties to choose from.

*Write for Catalog, with scientific FEED and SPEED CHART*

**The Henry & Wright Mfg. Co.**  
**760 Windsor St.,** Hartford, Conn.

New York Office, 136 Cedar St.

OVER-SEAS REPRESENTATIVE



ALLIED MACHINERY COMPANY OF AMERICA  
51 CHAMBERS ST. NEW YORK, U.S.A.

Principal Foreign Offices: Paris, Turin, Zurich, Barcelona

# They Never Run Hot

"Standard" Electric Drills  
can be pushed to the limit

An excess of power and an improved method of force-ventilation prevent overloads and burnouts. This enables operator to push them to the limit.

Fool-proof. Operators protected against shock.  
Built of five simple units,  
and very light for their high power and great rigidity.  
Dust-proof ball bearings.

*Let our Engineering Dept.  
figure on your needs*

**The Standard  
Electric Tool Co.  
Cincinnati, Ohio**



Would you like a drill  
that the spindle can  
be operated up and  
down by a foot lever  
as well as by a hand  
lever?

A Foot Lever is very handy  
when boring wood, hard rubber  
or hard fibre.

*Send for a circular of  
this Drill if interested*

**Francis Reed Co.**  
43 Hammond St., Worcester, Mass.





Have You Ever Noticed

How Few Second-Hand

*Sipp Quick Change Speed  
Sensitive Drilling Machines*

Are Offered For Sale?

THERE'S A REASON!

**The Sipp Machine Company**  
Keen Street, PATERSON, N.J.

## Invaluable For Drilling Hard-to-get-at Holes



### The Harris Offset Drilling Attachment

Attached to ordinary drill presses, it drills, faces and counterbores holes and boxes in out-of-the-way places that cannot be reached otherwise. Specially adapted for automobile, railroad and general machine shop work. Saves expensive time and insures superior results.

Various sizes and forms of this Attachment furnished for unusual jobs.

*Write for the illustrated Folder O. K.*

**Harris Engineering Co.**

Bridgeport, Connecticut

## Minster Jr. Drill

**For Heavy Boring or  
Fast Light Drilling.**

The MINSTER is a high grade single purpose drill press of such unusual design that it can take care of many heavy boring jobs usually put on larger drills.

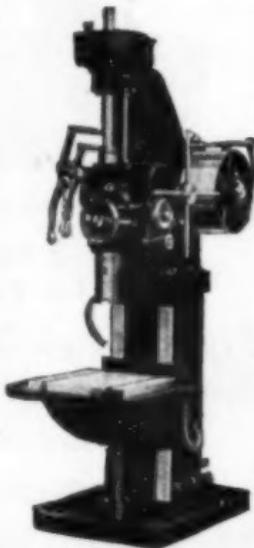
At the same time its six speed and four feed changes make it highly efficient for fast light drilling. Changing gears affords any speed or feed desired.

Ball bearings throughout, high carbon steel spindle and top quality wearing parts insure smooth, silent motion and capacity to stand up under long, hard usage.

*Send for Bulletin 30*

MACHINE TOOL DEPT.

**Minster Machine Co.**  
Minster, Ohio



# DETROIT SEMI-AUTOMATIC DRILLING MACHINE

Keeps the Operator Hustling

Drills Small Holes Quickly and Accurately

A special adaptation of the drill press to meet modern production requirements.

Capacities,  
0 to  $\frac{3}{8}$ "  
drills.

Working  
parts  
enclosed.

Practically  
fool-proof.



The specific purpose of the "Detroit" is the fast, easy and precise drilling of small holes in small work. When the drill feeds are given the desired adjustment they operate automatically and it's up to the operator to run the machine to capacity. The horizontal spindles insure maximum speed and simplicity of parts. It is the latest development of the modern drill press to meet the production needs of today and tomorrow.

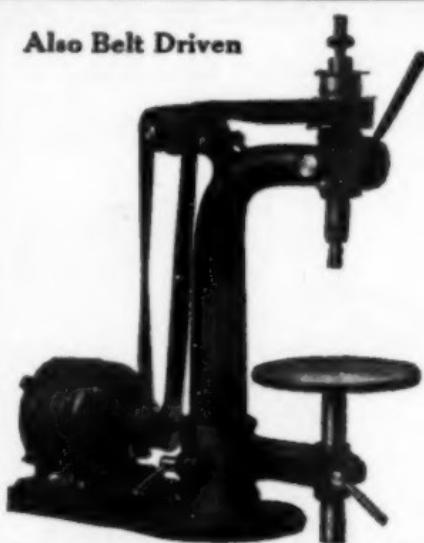
*Illustrated Folder and specifications on request.*



6525-45 St. Antoine St.,

DETROIT, MICH.

Also Belt Driven



Burke 10"

## Bench Drill Motor Driven

Extremely accurate,  
very sensitive and of  
*Burke Quality*.  
Has double flanged  
top cone mounted  
on large bearing  
through which  
spindle runs. Spindle  
thrust taken on  
a ball bearing.

*Worth more than  
it costs. Write for  
full information*

**The Burke Machine Tool Co.**  
297 East 16th St., Conneaut, Ohio

## Send Samples



or Drawings  
of your Tapping  
Jobs and let  
us give you  
Production  
Estimate

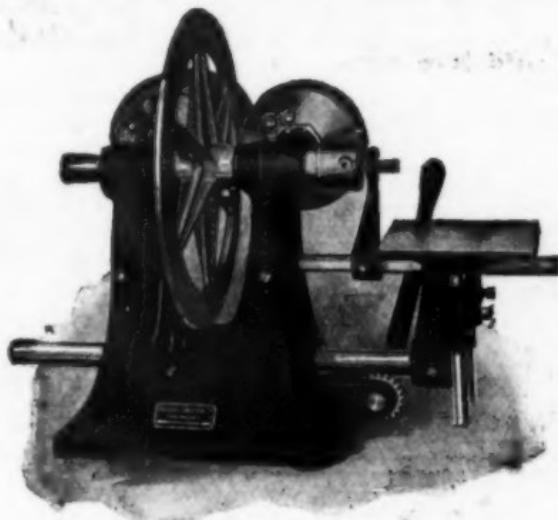
Burke Friction Driven Tapping Machines eliminate all shock to the tap, and for this reason stop 95% of your tap breakage.

Look into your scrap bin and figure up your losses in broken taps and imperfectly tapped work and see what you can save by installing Burke Equipment.

**The Burke Machine Tool Co.**  
297 East 16th St., Conneaut, Ohio

# "R-S" Tapping Machines

Do Fast, Exact, Economical Work



Cut shows our  $\frac{1}{2}$ " machine. We also make  $\frac{3}{16}$ " and  $\frac{5}{16}$ " sizes, bench or floor type. Can be direct connected to motor.

These tapping machines are superior in workmanship and design. They are production tools, first and foremost. They have practically done away with tap breakage, and do not require skilled labor to operate. A boy can secure maximum production.

They can tap per hour EIGHTY  $\frac{1}{2}$ " holes,  $9/16$ " deep. How's that for efficiency?

For speed, accuracy, safety they are unsurpassed.

*Write for our Tapping Machine Bulletin describing our full line of Vertical, Horizontal and Radial Tappers*

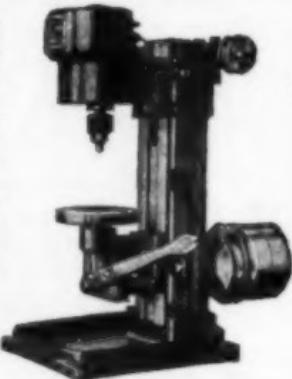
RICKERT-SHAFER CO., 1110 Cherry Street, ERIE, PA.

## Bicknell-Thomas Friction Driven Vertical Tapping Machine

It taps to the bottom of blind holes without danger of breaking tap. The elimination of all shock when reversing also saves taps and increases output. It is easy to operate, sensitive and highly productive. Capacity, 0 to  $3/16^{\prime\prime}$  taps.

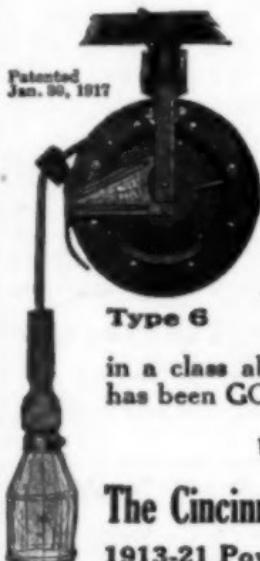
We also make Plain Horizontal Bench Tappers in two sizes, with capacities of 0 to  $3/16^{\prime\prime}$  and  $3/16^{\prime\prime}$  to  $\frac{3}{8}^{\prime\prime}$ . They are high-grade machines, sold at a low figure.

*Write for specifications  
and the moderate price*



**Bicknell-Thomas Company**  
**90 Wells Street, Greenfield, Mass.**

Patented  
Jan. 30, 1917

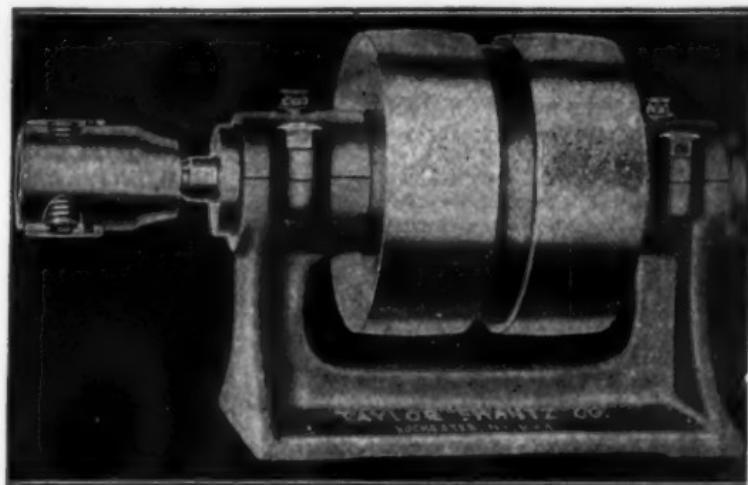


## Autex Extension Reel

Previous types have been eminently satisfactory to the user, but the present type possesses additional features that places the "Autex" clearly in a class absolutely exclusive. Our motto has been GOOD, BETTER, BEST.

*Write for particulars*

**The Cincinnati Specialty Mfg. Co., Inc.**  
**1913-21 Powers St., Cincinnati, Ohio**



## **T-S Bench Tapping Machine**

**0 to 5-16" Capacity**

Will save you many dollars  
with an outlay of only a few

**Price \$25 Complete**  
**F. O. B. Rochester, N. Y.**

Fully equipped, including Jacobs Chuck.  
**No Extras.** Rapidly taps all metals of  
medium thickness with minimum breakage.

**Taylor-Shantz Company**  
**480 St. Paul Street,                   Rochester, N. Y.**

# **Madison Boring Cutters and Bars**

## **Save Money in the Tool Room**



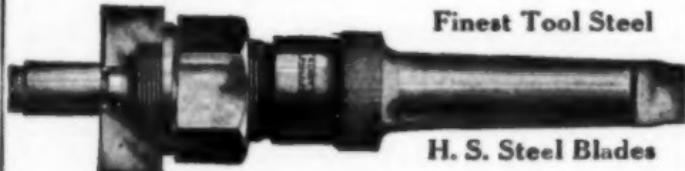
They take the place of reamers and do much better work, insuring absolutely straight finished holes any size required. Made in 45 sizes—from  $1\frac{1}{4}$ " to 5" diameter. Adjustable to within .00025 in less than five minutes.

Leading automobile corporations are satisfied users of the MADISON—used also in U. S. Ordnance and Navy Depts.

*We'll send them on approval for a thorough trial*

**MADISON MANUFACTURING CO., - Muskegon, Mich.**

## **Saves High Speed Drill Costs**



**Fine Tool Steel**

**H. S. Steel Blades**

### **Alert Boring and Facing Tool**

It bores, faces, counterbores and radiuses **LARGE HOLES** where the cost of large H. S. drills is prohibitive. Bores clean, perfect holes 6" deep in one cut. Performs any of above operations on Turret Lathes, Automatic Screw Machines and Drill Presses. Made in three sizes.

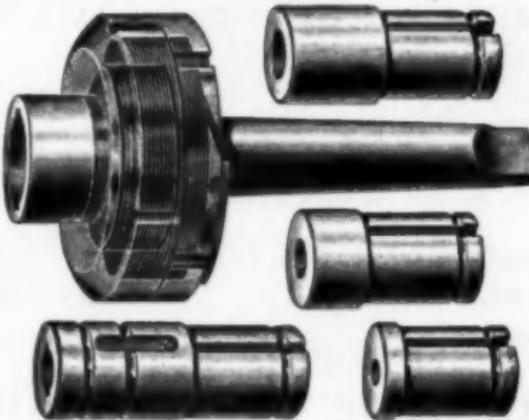
We also offer Improved Ratchet Tap Wrenches, Roller Grip Arbors and Roller Grip Mandrels—**ALL PATENTED**; High Speed Solid Tap Wrenches and Hand Knurling Holders.

*Write for our Circular "H"*

**Alert Tool Co., 237 N. 6th St., Philadelphia, Pa.**

# THE SAFETY FRICTION DRIVEN DRILL and TAP HOLDER

Cuts Out Tap Breakage



Tap breakage is eliminated because spindle instantly revolves under undue strain. "The Safety" permits tapping to the bottom.

Simply designed and easily operated. It enables you to change from drill to tap, or tap to drill, without stopping spindles. This prevents "lost motion" in changing from drilling to tapping. There is nothing about it to break or get out of order. Made in four sizes—0 to 2½" diameter.

Let it make a big cut in the high cost of your tap breakage.

*We solicit a trial order*

**THE BEAMAN & SMITH CO.**  
PROVIDENCE, RHODE ISLAND

One Trial Will Convince You That



## The EASY-Lock Holder and Counterbore Cutter

is the most efficient tool holder now offered. No wrench, hammer or wedge required. *One twist locks cutter into holder.* Cutters are adjustable and can be used up to a third of their length. Made also to fit screw machines and turret lathes.

*Folder on request*

Manufacturers Machine Products Co.  
1320 Mt. Elliott Ave., Detroit, Mich.

## Why Waste Expensive Time Over Broken Taps?

Walton Tap Extractor



Takes Ends Out At Once

When a tap breaks the WALTON PATENTED TAP EXTRACTOR cuts out all needless waste of high-priced labor in taking out the broken end by ordinary rule-of-thumb methods. Instead, you merely insert the prongs of this tool into flutes of broken end and one or two twists extracts the piece—easily and quickly. *Here's a real dollar saver.*

You may have one on approval. Your address?

THE WALTON CO., Hartford, Conn.

# The Universal Angle Plate

Eliminates Frequent Resetting

12°x18°  
Worm  
Adjusting



Protected  
by Patents

Made in Four Sizes, 4x6°, 6x8°, 8x10°, 12x18°

You will find it invaluable for insuring quick and rigidly accurate tool room operations. If you have a piece of complex design requiring drilling, milling or other kinds of machining at various angles, much labor and patience must be spent in making the necessary readjustments. The UNIVERSAL eliminates all extra set-ups. It is quickly and easily adjustable to any required angle—horizontal or vertical—without disturbing the piece.

Turns plain drilling, milling, planing, boring, shaping, or grinding machines into Universals. Swivels 360 degrees horizontally and 90 degrees vertically, and has vernier attachment reading to 5 minutes for particularly fine work.

*Write for particulars about this big cost saver*

**Boston Scale & Machine Co.**  
100 Ruggles St., Roxbury, Mass.



## The "Woodstock"

Saves Many Good Dollars  
By Protecting Costly Taps

It is calculated that 90 per cent of taps break. The WOODSTOCK Improved Patent Safety Tapping Chuck eliminates this needless waste.

It automatically releases the tap the instant it binds or hits bottom of hole, and a boy easily operates it.

Used in U. S. Arsenals and Navy Yards, and in leading Automobile Plants. Made in five standard sizes.

*Sent on trial on request  
Why waste expensive taps?*

Peter Bros. Mfg. Co., 115 Railroad St.,  
ALGONQUIN, ILL.

## COGS (DRILL)



## Bell-Type Centredrill

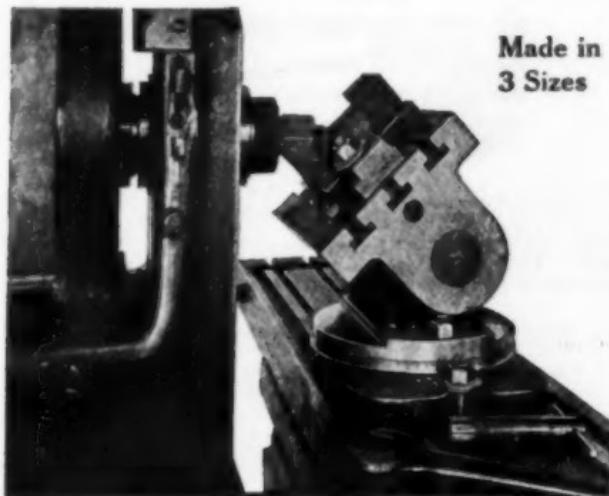
This Centredrill gives you a uniform length of countersink, which insures accurate finishing operations. Prevents banging up the centered end, which has spoiled many a piece.

*Write for Catalog of "Production-Increasing Tools"*

Cogsdill Manufacturing Co., Detroit,  
Michigan  
Originators of the Ground Radial Relief Centredrill

# The Reid Universal Angle Fixture

Made in  
3 Sizes



As a time and labor saver in machine shop output it is a proven pacemaker. It is not only rapid, accurate and adaptable, but is besides so massively designed that it stands up under the heaviest and toughest wear and tear. This cuts out chatter and distortion.

"The Reid" is so simply and perfectly built that error is impossible, even by an inferior workman. It swings 360 degrees horizontally, 180 degrees vertically, and allows practically every compound angle. Exact adjustments are made by double vernier to within  $1/12$  of a degree either way from central position. Still finer adjustments provided by sine bar attachment. Vertical adjustments made by gear and pinion wrench.

*Why not get further data about this superior tool?*

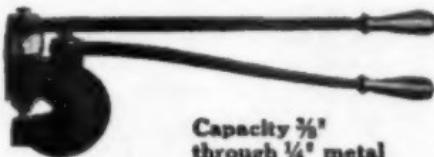
**Reid Bros. Co.** 59 Park St.  
Beverly, Mass.

Export Department, 77 Broad St., New York City  
English Agents, Oliver Machinery Co., Ltd., 201-03 Deansgate, Manchester, Eng.

Also Manufacturers of the Reid Surface Grinder

## Whitney Ball Bearing Punch No. 10

Lightest, fastest, easiest working tool made  
for punching sheet metal, angles, etc.



Capacity  $\frac{3}{8}$ "  
through  $\frac{1}{4}$ " metal

With the elimination of friction, all the energy applied to the levers is transmitted to the punch. This permits a thread pitch impossible on any other punch, placing this tool *in a class by itself*. The spindle and drop-forged frame are made of special steels and heat treated. All parts made to jigs and interchangeable.

*Write for description and our punch price list*

**Whitney Metal Tool Co.**

109-111 Forbes Street,

Rockford, Ill.

## Victor Collapsible Taps

Regular  
Sizes  
Up to 6"



Larger Sizes  
to Order

These durable and efficient tools cut clean, sharp threads easily and rapidly. Unlike solid taps, the inserted chasers can be ground and adjusted up to  $1/32$ " under or over size. They reduce tapping time **Fifty Per Cent.**

*Here's a fine chance to cut tapping costs*

**VICTOR TOOL COMPANY, - WAYNESBORO, PA.**

# No Air and No Wrench Needed

## With the Barker Wrenchless Chuck

But it will increase production from 30 to 150 per cent! Just one pull on the lever and the piece is chucked—could anything be simpler?

The grip of the "Barker" is enormous, and yet, any desired pressure may be set at the touch of the operator. The jaws may be operated whether the chuck is revolving or still.

Send for one and see how it will turn wrenching and adjusting time into actual production time.

**THOMAS ELEVATOR  
COMPANY**  
*CHUCK DIVISION*  
**31 So. Hoyne Ave.  
CHICAGO, ILLINOIS**

Sizes,  
6" to 16"  
Made with  
2 and 3 jaws

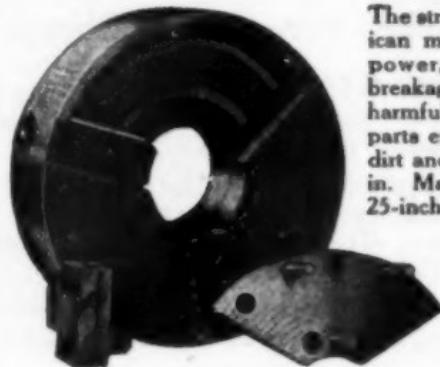
Centers  
Automatically

*Catalog  
on request*



Why not use the *MODERN* method of chucking?

# Coventry Chucks



The strongest on the American market as to gripping power, protection from breakage and freedom from harmful wear. All working parts enclosed to keep out dirt and keep the lubricant in. Made in sizes of 9 to 25-inch diameter.

Write  
for Bulletin  
No. 201

**ALFRED HERBERT Ltd.**  
54 Dey Street, New York

14

## Reduce Costs 3-to-1

### Sellew Adjustable Drill Heads

make *three* holes in the time of one, a saving that's well worth while in these times.

We also make *Special Heads with fixed spindles* to suit your requirements.



*Let us help you to lower drilling costs*

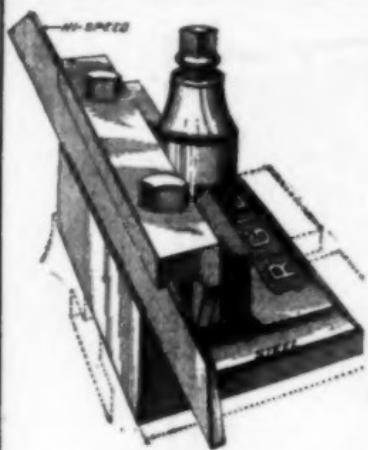
**SELLEW MACHINE TOOL CO., Pawtucket,  
Rhode Island**

# Jacobs Chucks

The use of a product in ever widening circles is incontrovertible evidence in favor of the quality of both product and service. The increasing demand for Jacobs Chucks is a case in point.



**The Jacobs Mfg. Co.**  
Hartford ~ Connecticut.



## BACK - STROKE Cutting - Off TOOL

100% more work  
and better work

Right hand or left. Gets up  
close to chuck. Blade al-  
ways erect and cuts off hard  
tool steel under Automatic  
Cross Feed.

*Sold on approval*

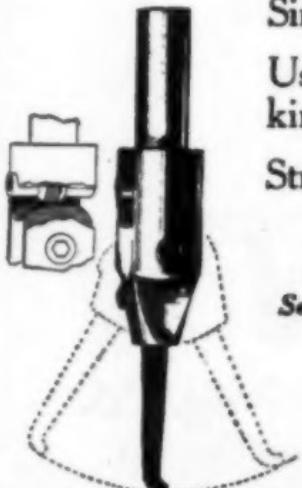
**RIGID** } Tool Holder Co.  
Washington, D. C.

## E-Z-SET Boring Tool

Simplest and Best.

Use for Boring of any  
kind, anywhere.

Straight or Taper Shank.



4 SIZES  
5/16, 3/8, 5/8, 3/4" Tool Bits

*Sent on 10 days' approval*

THE  
**B. & W. Tool & Die Co.**  
102 St. Clair Ave., N. W.  
CLEVELAND, O.

# McCrosky



## McCrosky - Super Adjustable Reamers

for

Long Service  
Efficient Service

They cut the cost and improve the finish  
of every hole they ream.

*Send for McCrosky Catalog No. 7*

**McCrosky Tool Corporation**

Meadville, Pa., U. S. A.

*Branches and Agencies in all principal cities*

Export Agents: Benjamin Whittaker, 21 State St., New York, N. Y.

## COST CUTTING TOOLS

## Floor Walkers Waste Money



Nothing is so costly in a shop as waste steps, and nothing saves so many wasted steps for its cost as the—

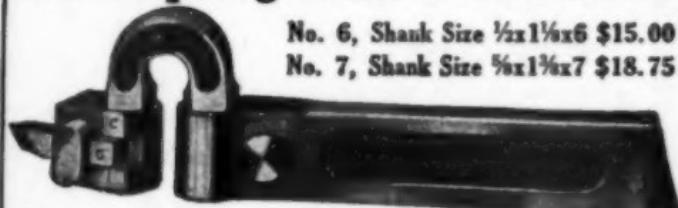
### "Champion" Portable Tool Stand

It takes the tools, vise and bench to the work, saving so many idle steps and mislaid tools that it pays dividends on its moderate cost almost before you know it.

*Write for Catalog No. 18  
It's full of economy devices*

Western Tool & Mfg. Co., Springfield, Ohio

## Cleveland National Spring Head Tool Holder



No. 6, Shank Size  $\frac{1}{2} \times 1\frac{1}{8} \times 6$  \$15.00

No. 7, Shank Size  $\frac{5}{8} \times 1\frac{1}{8} \times 7$  \$18.75

For  
Broaching,  
Cut-off,  
Forms,  
Gauges,  
Keyways,  
Radius,  
Taps,  
Worm or  
Square  
Threading,  
Etc.



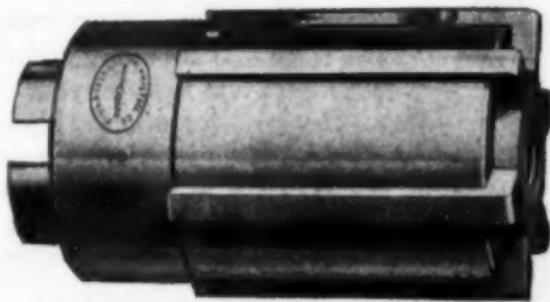
*Write for  
30 days'  
trial offer*

**ALSO**  
Circulars  
of other  
Modern  
Tool Room  
Specialties

**The Cleveland National Machine Co.**  
Dept. T. L., Cleveland, Ohio

# The Cashman Adjustable Reamer

Outlasts 15 to 20 Solid Reamers



It is unsurpassed for simplicity of design, superior wearing quality, and maximum efficiency in production. There are *only three parts*: Socket, Adjusting Screw and Lock Collar—all interchangeable. Built of high grade materials. Blades are made of H. S. steel and can be renewed and used their entire length of adjustment.

Makes the heaviest cuts in the hardest metals and stands up continuously under the toughest usage. All adjustments are made by one adjusting screw, from 1-16" to .0001" as required.

The CASHMAN cannot change its size in the hole.

Let us send you one for a trial at our risk. Your address?

**Cashman Tool Company**  
Waynesboro, Pa.



## The Handiest Tool in the Shop

The Canton Portable Crane and Hoist has a place in your plant for reducing handling costs. One man operates it and its applications are innumerable.

*Send for Catalog E-3*

**Canton Foundry  
and Machine Co.**

Canton, Ohio



Straight Shank Turning Tool



Boring Tool



Straight Shank Cut-off Tool

## Armstrong Tool Holders

Make One Pound of High Speed Steel go as far as Ten Pounds in Forged Tools.

Grand Prize Winners at Panama-Pacific Exposition.

*Complete Catalog Free.*

**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



# Riveting Revolutionized

**"The Hammer with the human stroke"**

Heads Rivets Cold



Heads 'em tight or loose, flush, countersunk, or finishes heads any shape desired at the rate of:—

A rivet a second, sizes up to 3-16 in.

A rivet in two seconds, sizes 1-4 to 3-8 in.

A rivet in three seconds, sizes 7-16 to 5-8 in.

## Built in Eight Sizes

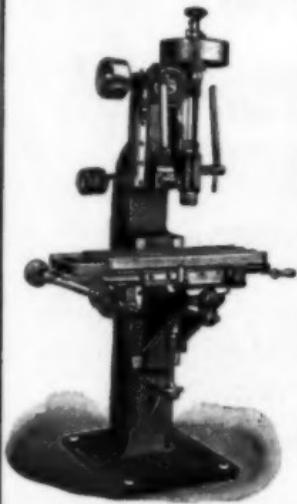
To handle rivets from the smallest, up to  $1\frac{1}{2}$ " in diameter.  
Send us sample assembly parts with rivets or sketch of your  
work, and let US shoulder your riveting problems.

*Send for the High Speed Hammer Book*

Department 13

**The High Speed Hammer Co., Inc.**  
Rochester, New York

## An Economy Milling Machine



### Clough No. 2 Vertical with Slotting Attachment

Specially adapted for blanking dies, die sinking, metal patterns and light machine work. Has six speeds with automatic feed. The Slotting Attachment has stroke of  $4\frac{1}{8}$ " and adjustable slide. Rapid, accurate, adaptable.

Size of table.....	28" x 34"
Lengthwise auto feed.....	21"
Cross motion.....	9"
Vertical adjustment.....	15"

*Our Catalog on request*

**R. M. CLOUGH**  
Meriden, Conn.

## This Hand Feed Miller

**\$155.**

Save Power—Save Room  
Save Money

That is what you do when you install Burke Milling Machines, as they take less power, need less factory space, and on account of the convenience in operation your small milling operations can be done much more rapidly than on a larger, heavier type machine.

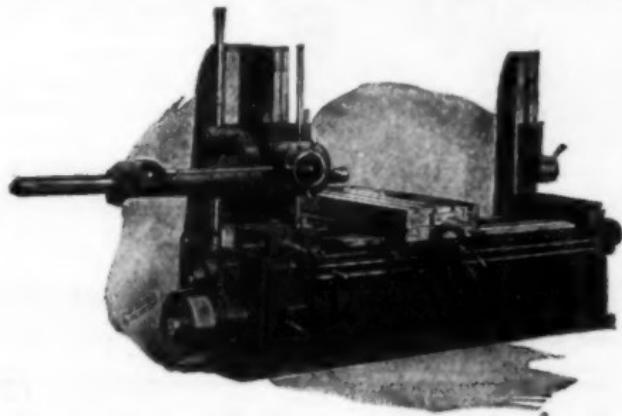


*Write for Catalog, which also shows larger and smaller sizes.*

**The Burke Machine Tool Co.**  
297 East 16th St., Conneaut, Ohio

# The Lambert Horizontal Boring, Milling and Drilling Machine

Extremely Simple—Wonderfully Accurate  
Under Quick and Easy Control of Operator



Extreme simplicity and precision are the salient features of this modern machine, combined with unusual convenience and productiveness. Quickly controlled by two levers which slide along the horizontal bars—one starts, stops or reverses any feed, and the other starts or stops the bar.

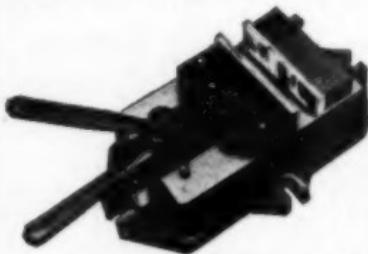
Bronze bushings and steel gearing used thruout the machine. It is arranged so left hand millers and cutters may be used when required. Bed permits operator to get close to his work. Construction of head affords greater range for boring or milling from table to center of bar. Spindle head enables both facing and boring to be done at the same time. Verniers furnished for table cross feed on request.

*Make its better acquaintance. May we send Folder?*

**Carroll Foundry & Machine Tool Co.**

Bucyrus, Ohio, U. S. A.

**"The Hartford"**  
**Quick Acting Milling Vise**



**Rapid—Rugged**

Jaw width ..... 5 in.  
Jaw Depth ..... 1½ in.  
Weight ..... 40 lbs.  
Maximum opening of Jaw  
3½ in.

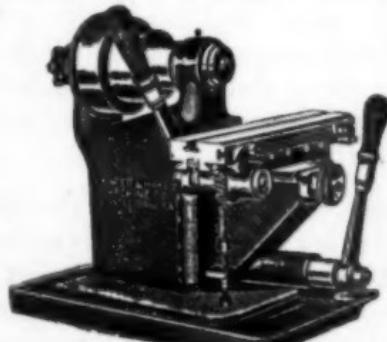
It affords maximum dependability, efficiency and economy.

It stands up day after day under the heaviest, toughest strain of milling jobs. Has quick fire adjustment. Outlasts five ordinary vises. One firm after a try-out gave us a straight order for thirty-two more.

*Write for full description*

**The Hartford Special Machinery Co.**  
285 Homestead Ave., Hartford, Conn.

**Just The Machine**



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

*Send for descriptive circular*

**The Carter & Hakes Machine Co.**  
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.  
WESTERN AGENTS—Marshall & Huschart Machinery Co.,  
Chicago, St. Louis, Indianapolis.

You waste no time getting the exact angle →

The tilting table, with accurate graduations in degrees, always helps to speed up the work.



## Why waste tool room time?

SAVE those golden minutes by installing Knight Milling and Drilling Machines. They have the convenience, speed and accuracy that enable your high-priced skilled machinists to do better work in less time. They also help to solve difficult machining problems. Made in four sizes.

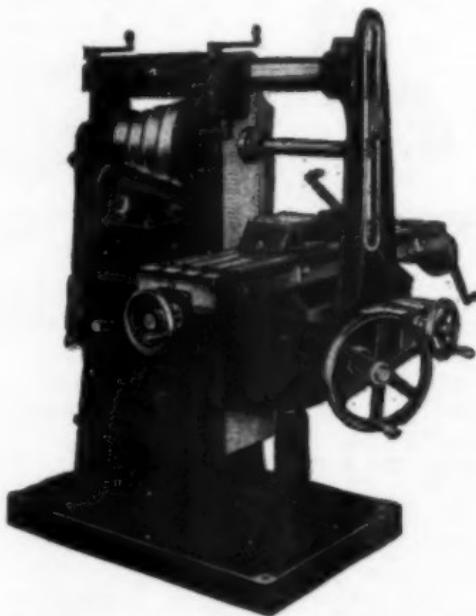
*Glad to send you our illustrated folders  
and to help you select the right machine.*

**W. B. Knight Machinery Co.**  
3920 W. Pine Blvd., St. Louis, Mo.

They mill, bore and drill at any angle with only one setting of the work.



You Can't Beat the  
**AMERICAN** No. 1½ PLAIN  
BACK GEARED **MILLER**  
For Maximum Quality Milling



The AMERICAN embodies all the latest exclusive improvements which make it an unusually high grade milling machine. Its massive design enables it to take care of all the heaviest strains. Its bearings are wide, and all operating levers are convenient to operator. Ample lubrication. Eight modern machine accessories regularly furnished.

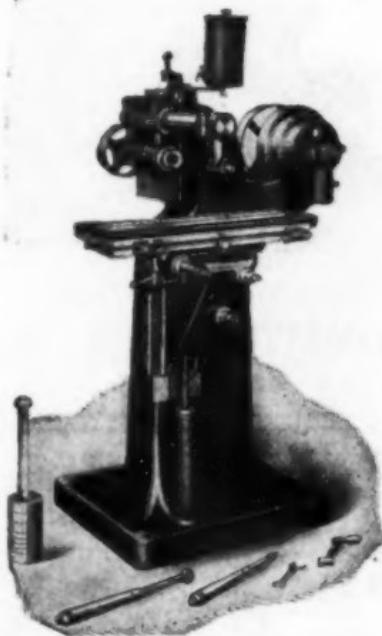
Swiveling Vertical Milling Attachment furnished, if desired, for all kinds of vertical milling.

*Get the specifications and look them over*

**The American Milling Machine Co.**  
Cincinnati, Ohio, U. S. A.

# **U. S. No. 1 Improved Miller**

**Offers Exceptional Milling Efficiency  
Combined With Utmost Economy**



**Hand  
and  
Weight  
Feed**

**Adaptable  
for  
handling  
heavy  
work**

The remarkable adaptability, economy and productive capacity of the U.S. No. 1. Improved Miller demonstrates the wastefulness of employing large heavy duty millers for the milling of small pieces. It has more power than any similar machine of its size.

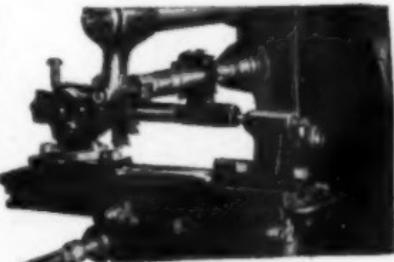
Vertical and horizontal feeds are independent and permit work being held close to table, so that it may be used as a profiler. The vertical lever feed being independent from the table and the head accurately counterbalanced, light milling work can be done on long or heavy pieces without danger of breaking cutters.

**It will well repay careful investigation**

**The United States Machine Tool Co.  
Cincinnati, Ohio, U. S. A.**

The Whiting & Comstock  
**Semi-Universal Dividing Head**  
Multiplies the Value of Hand Millers

It turns your hand miller into a UNIVERSAL MACHINE at small cost. This enables you to mill cutters, reamers, counterbores and similar small work quickly and accurately. In this way large heavy duty Universals are reserved for purely big jobs.



*It offers worth-while economy. Write us today.*

**WHITING & COMSTOCK,** 32 Union Place,  
HARTFORD, CONN.  
Export Department, 77 Broad St., New York City

**Relieves and Replaces Big Millers**

Davis Milling Attachment  
Does 90% of the Small Jobs

Converts  
any Drill  
Press from  
14 to 42-in.  
swing in  
2 Minutes



Relieves your large millers, comes in handy spotting castings, milling ends of bosses, etc., and does 90% of the lighter jobs as well as a \$1,000 machine; cuts keyseats perfectly. We also have low factory prices on our cylinder reamer for reborning the Ford car, and on our reliable air compressor. Write for details.

**Hinckley Machine Works, HINCKLEY,  
ILL.**

**U. S. Patent Adjustable  
Multiple Spindle Drill Heads**  
**Unsurpassed on Big Drilling Lay-Outs**



**Spindle units  
quickly attached,  
or removed, to suit  
the work in hand.**

**Fixed Spindle  
Heads of any  
practical type made  
to order.**

The conspicuous feature about the U. S. Multiple Spindle Drill Head is its **PATENTED** Double Adjustment of Spindles. Not only symmetrical lay-outs, but also holes in practically every conceivable line or formation—regular or irregular—can be easily and rapidly handled.

They are so rigid and powerful that the same speeds and feeds can be used with them as is employed for drilling a single hole. This means output is increased in direct ratio to number of units attached to head.

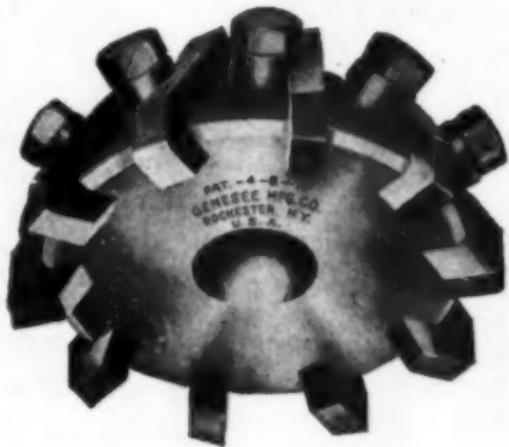
Nos. 1, 2, 3, and 3-A have from two to six spindles. Special Adjustable Heads built to order. No. 4 has four spindles, with single adjustment, for drilling evenly spaced holes in groups of four for pipe-fittings, flanges, etc.

*Send for complete specifications and prices*

**The United States Drill Head Co.**  
Cincinnati, Ohio, U. S. A.

# Genesee Tools Assure You

## Genesee Face Milling Cutter



This FACE MILLING CUTTER is a top-notcher in every way—built for the strenuous life and plenty of it. The body is made of Chrome Nickel Steel. Blades are set at an angle of 15 degrees, and actually curl chips when cutting. Has large, strong blades. For instance: 4" size has  $\frac{1}{4}'' \times \frac{5}{8}''$  blades. No tool bits used to spring and chatter. Can be used for boring, as cutting edge clears lock screws. With this Mill you can take heavier cuts with increased feeds, *thereby increasing production.* Sizes from 4" up.

*They save tool and operating costs and increase production.*

## Genesee Manufacturing Co., Inc.

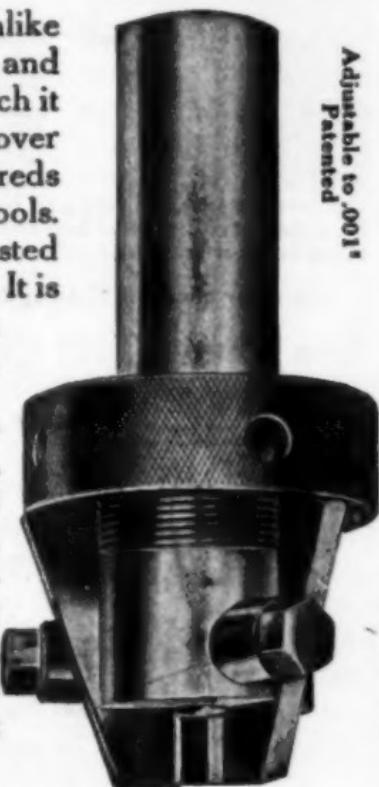
Manufacturers of Adjustable Hollow Mills, Facing Mills, and

# e You of Greater Economy

## Genesee Adjustable Hollow Mill

The "GENESEE," unlike solid tools, is adjustable, and the fourteen sizes in which it is made enable it to cover the work done by hundreds of non-adjustable solid tools. It can be quickly adjusted to the 1000ths of an inch. It is more ruggedly built than the ordinary solid tool.

It enables machines to produce to their FULL capacity. It cuts steel up to 15" per minute. One set of blades outlasts up to five solid tools and are easily replaced. Never clogs up with chips and cannot change in size.



*and increase output—why not make them your own?*

D. Inc., - Rochester, N. Y.  
ng, and Inserted Tooth Face and Side Milling Cutters

It Eliminates "That One Thick Tooth"  
the Risk of



The  
R  
E  
D  
•  
E

The RED-E Milling Dog and Driver insures correct spacing because the ball sliding in grooved jaw compensates for the different angle in the driver at various positions of work.

Dog cannot get loose, and there is no binding, cramping or lost motion. No adjustment of dog needed for correct milling of odd pieces. In gear cutting the risk of "one thick tooth" is eliminated.

*Send for complete Catalog No. H of RED-E Tools*

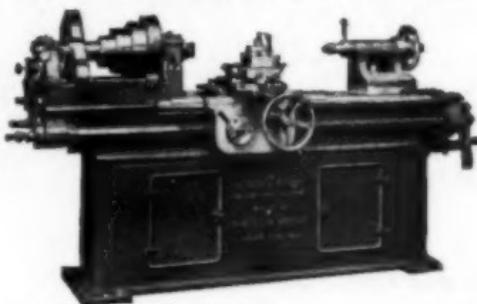
**The Ready Tool Co.**  
Bridgeport, Conn.



## Universal Relieving Machine

Drawings, patterns, tools, castings, and

**SAMPLE MACHINE FOR SALE**



Capacity 14" diam. by 39" between centers. Relieves all types of cutters, taps and hobs, straight or spirally fluted. Many machines in successful operation.

**Apply:—A. MORRIS THOMSON,** Hunterdon & First Streets  
**HARRISON, N. J.**

*Pay Only for the High-Speed Steel that CUTS*

# MOBACK CUTTERS

With Inserted and Adjustable Blades



Moback Face Mill  
(Patent pending)

The first cost is less than that of solid cutters, for only the blades are high-speed steel. The frame is high-grade carbon machine steel, and all parts are ground to gauges.

The renewal cost is *only a fraction* of that of solid tools, because (1) the frame is used indefinitely, (2) the blades are adjustable for *twice the wear* of solid cutters, and (3) you get a new cutter by *simply changing the blades*.

THE MOBACK FACE MILL, shown in the illustration, is highly efficient, thoroughly dependable, and so economical that it makes the use of solid cutters a reckless extravagance.

THE MOBACK END MILL is made on the same principle, for the same excellent results. THE MOBACK SIDE MILL also has the inserted blades, and can be used in pairs, or separately, or in combination with gang cutters. All Moback Cutters multiply the buying power of your dollar four to six fold in the purchase of RESULTS.

*May we post you fully, for ECONOMY'S sake?*

**Moback Tool & Machine Mfg. Co.**  
330 Atlantic Ave., Boston, Mass.

## Why Reduce Your Production

and waste money by using cheap, inaccurate Index Centers, when a few dollars more will buy a DICKOW INDEX CENTER, which is absolutely dependable, and guaranteed for its high degree of accuracy.



PROMPT  
DELIVERY

Stood the  
test for  
14 years



Over 2000 satisfied users  
all over the world.

Your old Index Centers  
taken in trade.

Also Manufacturers of "DICKOW SUPERIOR EIGHT" Precision Lathes  
Dependable and Accurate. Write us today for complete description

FRED. C. DICKOW MACHINERY CO., Not Inc.  
3504-3512 W. Lake St., - - - CHICAGO, ILL.

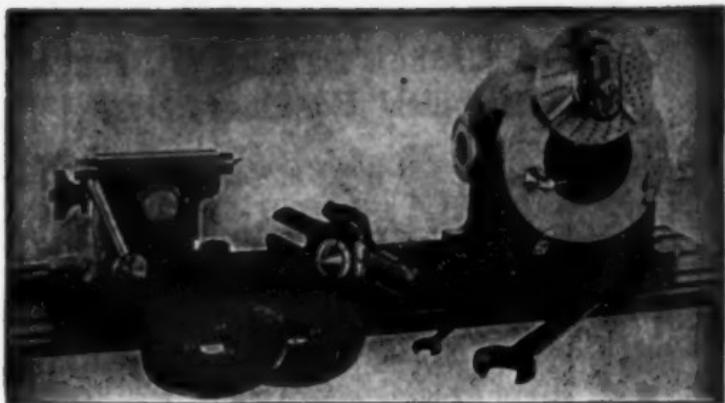
## Reduce Milling Costs



With this  
10' Universal  
Dividing Head

Built in very liberal proportions. Easily handles the heaviest cuts encountered on a plain miller. Graduated swivel head can be set anywhere from 10 degrees below the horizontal to 10 degrees beyond the vertical. Worm wheel and index pin are relieved of all strain by means of an efficient locking device.  
*Write for details.*

THE WILLARD-MIDDLETOWN MACHINE CO., Cincinnati, O.  
Successors to The Willard Press & Tool Co.



Plain Index Centers Swing 10<sup>1</sup> Diam.

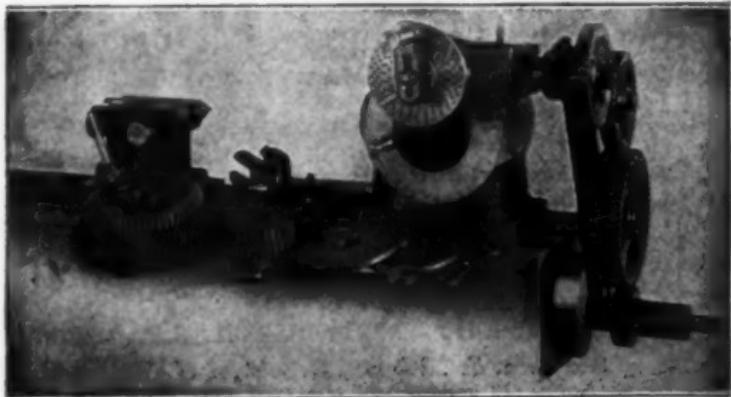
## SIMMONS OF ALBANY

These Dividing Heads or Index Centers may be used on any milling machine; are well designed; materials are the finest obtainable.

The Universal Index with Spiral Cutting Attachment is a quite recent development and will be found remarkably useful in any tool-room. Let us tell you more about these accessories.

**SIMMONS MACHINE CO., Inc., ALBANY, N. Y.**

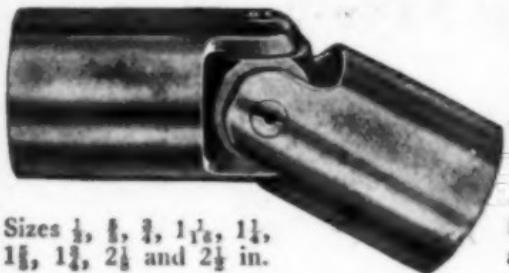
BRANCHES: 801 Singer Bldg., New York, 86-88 Exchange St., Buffalo, N. Y.  
Albany and Buffalo Warehouses



Universal Index Centers with Spiral Cutting Attachments

# Giant Universal Joints

## Are "Whales" For Heavy Duty



Sizes  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{5}{8}$ ,  $1\frac{1}{8}$ ,  $1\frac{1}{4}$ ,  
 $1\frac{1}{2}$ ,  $1\frac{3}{4}$ ,  $2\frac{1}{8}$  and  $2\frac{1}{2}$  in.

Efficient to  
an angle of  
45 Degrees

Vanderbeek  
Universal  
Ball Joints  
for higher  
angle drives

Built for use in the driving mechanism of powerful, high speed machines. Wear contacts are of hardened steel and large diameters. Stem ends are braced up to and over the line of strain. Self oiling and dust proof.

*Put your angular drive problems up to us*

**Ainslie Machine & Tool Works**

Successors to Vanderbeek Tool Works  
HARTFORD, CONN.

# COOPER

## UNIVERSAL JOINTS FLEXIBLE COUPLINGS

**"You Can't Break Them  
Or Wear Them Out"**



Smooth exterior.  
Neat appearance.  
5 Simple parts.  
Large oil space.  
Working surfaces  
case hardened.  
No limit to size.



Guaranteed stronger than shaft at any angle.

Joints already bored to fit your shafts from  $\frac{1}{4}$ " to 2" carried in stock for immediate delivery.

*Ask us to send you one for inspection and test.*

**Cooper Flexible Transmission Co., Inc.**  
8th Ave. & 18th St., Brooklyn, N. Y.

OVER 50,000 MILES  
NOW REPORTED ON

## “WHITNEY”

*High Efficiency*

FRONT END  
MOTOR CHAIN DRIVES  
AND STILL IN GOOD CONDITION



Not one of these  
chains has been  
known to skip a  
sprocket tooth.

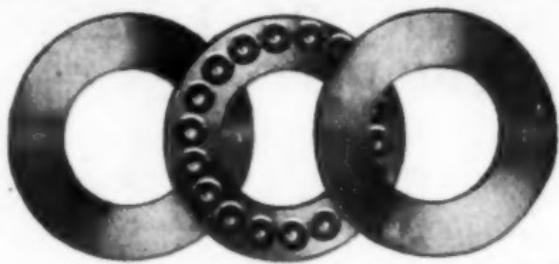
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Interchangeable on the  
Sprockets  
Furnished  
with the Car

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The Whitney Mfg. Co.  
HARTFORD, CONN.



## THRUST BEARINGS

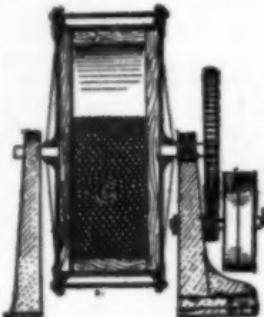
FLAT OR GROOVED RACES

from  $\frac{1}{4}$ " SHAFT DIA., UP

ONE BEARING—OR ONE THOUSAND

**THE GWILLIAM COMPANY**  
23 FLATBUSH AVE., BROOKLYN, N. Y.

*Save—Save—Save*  
**75% and Up of Buffing Costs**



### The Abbott Burnishing Barrel

burnishes by the wholesale at a saving of 75 to 99 per cent over buffing one piece at a time. The quality of the work is superior, without bending, breaking or marring anything. "The Abbott Process" is scientifically developed to the point of perfect burnishing service.

*Write for copyrighted Booklet and send samples for burnishing  
All sizes of burnishing balls and soap chips for prompt delivery*

**The Abbott Ball Company**  
Elmwood District, Hartford, Conn.

# The Catlin No. 8 Keyseater

Greatly Reduces Keyseating Costs

Simple  
Rapid  
Productive

Cuts Keyseats  
1-16" to 1½"

Stroke Adjustable  
Up to 13"



Simplicity, ease of operation and maximum quantity and quality of keyseating are the chief merits of the CATLIN NO. 8.

The crank motion enables the cutter to enter the cut at the slow part of the stroke. This is much preferable to the ordinary rack and pinion where the rate of travel does not vary.

It carries  $\frac{1}{2}$ " to  $1\frac{1}{2}$ " diameter cutter bars, which are self-contained and have the tool relieving and feeding mechanism.

On some jobs pieces can be keyseated right along without clamping down work or stopping machine.

When belt driven, a 3-step cone provides THREE SPEEDS.

*Full details gladly furnished on request*

**Chattanooga Machinery Company**  
**Chattanooga, Tenn.**

# CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and  
Coventry Chairs, Block, Roller and  
High Speed Silent types on hand

## CATALOG

**CULLMAN WHEEL CO.,**  
1359 ALTGELD STREET  
CHICAGO

# Davis Keyseaters

Are as much a part of the equipment of any shop or tool room as a lathe or shaper

They save time and labor, which is the essential thing in keeping the cost of production down in these days of high labor costs, and they save the big machines for the big jobs.



Made in two sizes

*Send for pamphlet*

**Davis Machine Tool Co., Inc.**  
Rochester, N. Y., U. S. A.



## "Wear-Ever" Woodruff Chuck And Keyway Cutter

The "Wear-Ever" Woodruff Keyway Chuck insures a positive drive and true-running cutter. Eliminates making collet chucks. Fits all standard makes of milling machines, and is made in all tapers, such as Brown & Sharpe and Farno tapers.

Let us supply you with cutters

No extra charge for the square

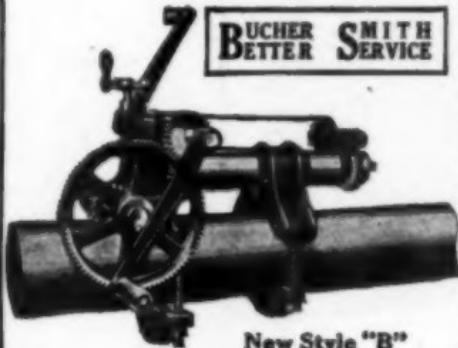
Centers by the shank



Drives by the square

**SCULLY-JONES & COMPANY, 555 Railway Exchange Bldg.,  
CHICAGO, ILL.**

## A Strong Portable Keyseater



BUCHER SMITH  
BETTER SERVICE

This handy little tool is easily taken to the job and does the work quickly, accurately, and at minimum cost—it saves labor and money.

Style "B" has six milling cutters and cuts keyways from  $\frac{1}{4}$ " to 2" wide, in shafting 2 in. to 8 in. in diam. and 12 in. long without re-setting.

*Our tools aid production—send for the Catalog*

**THE BUCHER-SMITH CO.  
East Liverpool, Ohio**

# High Speed Woodruff Keyway Cutters



## STOCK SHIPMENTS

No.	Diameter	Thickness	Shank	High Speed
1	1-2"	1-16"	1-2"	.75
2	1-2	3-32	1-2	.75
3	1-2	1-8	1-2	.75
4	5-8	3-32	1-2	.90
5	5-8	1-8	1-2	.90
6	5-8	5-32	1-2	.90
7	3-4	1-8	1-2	1.05
8	3-4	5-32	1-2	1.05
9	3-4	3-16	1-2	1.05
10	7-8	5-32	1-2	1.30
11	7-8	3-16	1-2	1.30
12	7-8	7-32	1-2	1.30
A	7-8	1-4	1-3	1.30
13	—	3-16	1-2	1.75
14	—	7-32	1-2	1.75
15	—	1-4	1-2	1.75
B	—	5-16	1-2	1.75
16	1-8	3-16	1-2	2.00
17	1-8	7-32	1-2	2.00
18	1-8	1-4	1-2	2.00
C	1-8	5-16	1-2	2.00
19	1-4	3-16	1-2	2.50
20	1-4	7-32	1-2	2.50
21	1-4	1-4	1-2	2.50
D	1-4	5-16	1-2	2.50
E	1-4	3-8	1-2	2.50
22	1-3-8	1-4	1-2	2.75
23	1-3-8	5-16	1-2	2.75
F	1-3-8	3-8	1-2	2.75
24	1-2	1-4	1-2	3.25
25	1-2	5-16	1-2	3.25
G	1-2	3-8	1-2	3.25
26	2-1-5	3-16	No	3.00
27	2-1-5	1-4	No	3.10
28	2-1-5	5-16	No	3.20
29	2-1-5	3-8	No	3.30

**E. LAGERHOLM COMPANY, INC.**  
9 So. Clinton St.,  
**CHICAGO**

# KEYSEATS Are ESSENTIAL

How are you getting yours?  
Circular O will lead you in  
the right direction.

*Ask for it*

National Machine Tool Co.

2266 Spring Grove Ave., Cincinnati, O.



## These STAGGERED TEETH



(Section of Velco Broach)

Permit More Chip Room and Make  
—the "Velco" Cutter Bar the only Scientific  
Broach made for cutting keyways.

Other  
Broaches

Round—Spline—Square

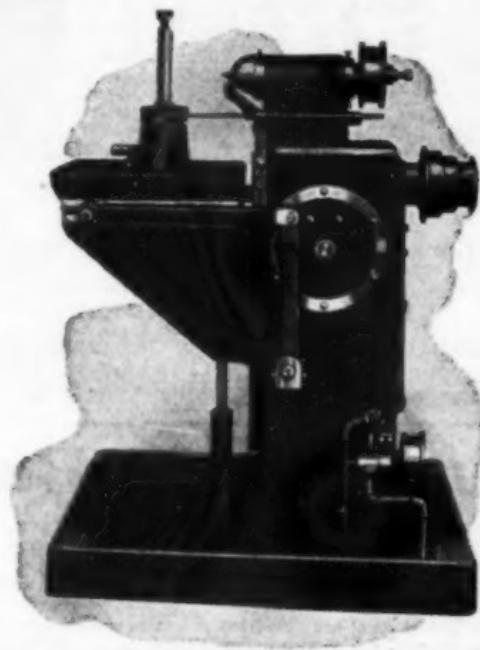
Same  
Quality

**Velco Manufacturing Company, Inc.**  
Wells St., - - - Greenfield, Mass.

Ask for our Bulletin on Broaching

# —those tractor gears

Are now successfully rounded on a production basis with the "Cross"



THIS PATENTED Gear Tooth Rounder does correct work at the profitable rate of 25 teeth a minute.

Every tooth is guaranteed to be a perfect half circle from tip to root — the only perfect shape for sliding mesh gears. Other forms, such as starter-ring and pinion forms, can also be rounded.

*The "Cross" will help you keep manufacturing costs down to bed-rock*

**Cross Gear & Engine Company**  
Detroit, Michigan

Patented here and abroad; sold ONLY by us

# Thorofine GEARS

NOTHING TOO SMALL - NOTHING TOO INTRICATE

**THOROFINE GEARS** ARE GEARS OF EXCEPTIONAL ACCURACY.

## LARGE GEARS

Made with the same care that has given Thorofine small gears their unusual reputation. Our Quotations will interest you. Write today.

**MERKLE-KORFF GEAR CO.**

Formerly Modern Tool & Stamping Co.  
313 So. Clinton St., Chicago, Ill.

## Tung - Stel - Bath

A quenching medium for hardening Tungsten or High Speed steels composed of scientifically prepared chemicals in lump form.

This material when placed in an iron pot and heated will melt at a very low temperature.

High Speed steel may be heated to the maximum temperatures and quenched in Tung-Stel-Bath, primarily heated to a temperature as high as eleven hundred degrees Fahr.

### ADVANTAGES ATTAINED BY THE USE OF TUNG-STEL-BATH:

Maximum hardness and toughness.

Eliminates the necessity of drawing the temper in a great many instances.

Obviates the necessity of sand blasting entirely.

Prevents cracks due to hardening strains.

No more oxidization.

No more oil carbon deposit.

Tools quenched in Tung-Stel-Bath are as clean after hardening as they were before being placed in the fire.

*Write today for full information.*

**Bennett Metal Treating Company**  
Elmwood, Connecticut

# Ransom Motor Driven Water Tool Grinder

Eliminates Splashing



This latest and most modern type of Water Tool Grinder completely obviates the usual disadvantages of ordinary wet grinders—does not throw water over the floor and operator. Instead, the water is conducted by centrifugal blower to the exact spot where the piece is being ground and there is no musing or splashing.

Water tank holds several pails of water. There is also a large settling compartment for receiving sediment which can be quickly cleaned out with a shovel. Ample guards. Motor or belt drive. Size of wheel, 20" by 1½".

*Write for details covering our complete line*

**Ransom Manufacturing Company**

Oshkosh, Wisconsin, U. S. A.

Wet and Dry Grinders, Heavy and Light, Motor and Belt Drive

# La Salle Grinders

TIME-SAVING  
TOOLS FOR both PRECISION AND  
PRODUCTION



## No. 1 Plain and Surface Grinder (Micrometer Adjustment)

Grinding wheels..... 8"x1"

Between wheels..... 15"

Height to spindle center..... 40"

Table surface..... 8"x14"

Has vertical travel of 12" on guides,  $\frac{3}{4}$ " by micrometer, and may be raised to within 2" of spindle center. Wheel grinds to center of a surface 9" wide.

Spindle speed..... 3,000 r.p.m.

Countershaft speed..... 1,000 r.p.m.

Floor space..... 18"x24"

Net weight..... 300 lbs.

This No. 1 Plain and Surface Grinder was designed for general use in both tool room and machine shop. It combines the cream of our experience with the most modern ideas in grinder construction.

The micrometer adjustment on the horizontal hand-wheel has graduations marked in 1000ths of an inch. These graduations are 5-32 of an inch apart, thus allowing a very fine adjustment of the table for depth of cut. The knee is brought to any required position by means of the vertical hand-wheel which turns a pinion in the rack, and is clamped solidly in place by the hand-nut at the left. The table is carried by a stiff post which moves vertically in the knee and is kept from turning horizontally by a feather.

*Better have complete specifications of our Plain and Surface Grinders and Automatic Surface Grinders. See next page for Drill Grinders*

## La Salle Tool Company

La Salle, Illinois, U. S. A.

# La Salle Grinders



## Style C T A American Drill Grinder For Dry Grinding Only

Unexcelled as a dry grinder for twist drills from  $\frac{1}{4}$ " to  $2\frac{1}{4}$ " diameter. Extra large drill holder has capacity from 1" to  $3\frac{1}{2}$ ".

Style B T A is a similar machine with overhead countershaft.



## Style W T A American Drill Grinder For Wet or Dry Grinding

Has the same drill capacity as style C T A, shown above.

A handy feature on all American Drill Grinders is the Caliper Jaw device for getting any desired clearance without making a single move other than for regular adjustment for size of drill. Write for complete specifications, which outline their splendid design in detail.

American Drill Grinders are furnished wet or dry, motor driven, with self-contained countershaft or with overhead countershaft, as fully described in our literature.

**La Salle Tool Company**  
La Salle, Illinois, U. S. A.

There Is Nothing Better Than The  
**"Duplex" Emery Wheel Dresser**  
For Maintaining Fine Cutting Surfaces



Unexcelled for leaving a fine cutting surface on grinding wheels. The patented aluminum hood protects the operator against flying particles. Either of two cutters is furnished: (1) the "Diamond" Cutter, designed for truing large, coarse wheels; or (2) the "Improved" Cutter, for truing medium and fine wheels. These cutters run on a bronze bushing.

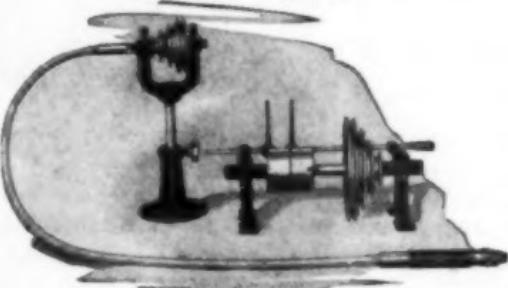
*Sure we send them on trial—just say the word*

**Cleveland Flue Cleaner Mfg. Co.**  
321 Frankfort Ave., N. W., Cleveland, Ohio

**Strand**  
TRADE MARK

**STRAND**  
Flexible Shaft Equipments  
For Belt Drive

Type C-4-5-6-7



They  
Get in  
Where  
No  
Other  
Can.

MADE BY—**N. A. Strand & Co.**  
Machinery Hall, CHICAGO

# This Screw Press | It Just Makes Offers Unusual | Grinding a Economy | Pleasure



Type B Screw Press

The MANHATTAN has a large bed, affording ample room for quick and accurate die making. It is a one man machine—no extra help required to operate it. Assures perfect alignment of punch and die—something not always possible with a punch press costing ten times as much.

It also avoids holding up punch presses for this work, and cuts out the extra labor costs required to operate them.

Can shear in any die within its limits.

*How's that for maximum efficiency and economy?*

*Two QUALITY machine tools. Want particulars?*

**Manhattan Machine & Tool Works**  
Dept. A., Grand Rapids, Mich.



Manhattan Surface Grinder

This modern grinder has no vibration because it is built unusually rugged and rigid. It offers ample power for the heaviest work.

New and practical improvements are featured in almost every part of this invaluable machine tool. Affords clearance where it is most needed. Both dials are graduated. The construction of spindle, with over-size phosphor bronze bearings, allows of making very heavy cuts. The table is surface ground with its own wheel.

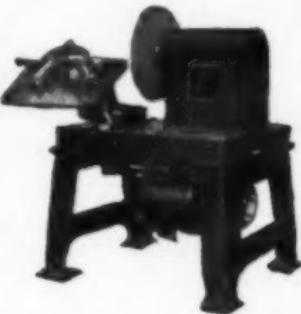
**Operates Silently**

## Fenn PORTABLE ELECTRIC Gear Cutter Grinder

Saves Time, Labor, Power—MONEY

Why waste time with a stationary cutter grinder when you can easily carry a FENN No. 1 to any bench or corner in the shop? You simply attach motor to any 110 v. lamp socket and go ahead. In half a minute you can change from grinding a 40 pitch cutter to a 3 pitch cutter. Insures keeping your gear cutters always ground radial.

Cuts brass tubing, etc., cleanly and quickly.



*Description and price?*

**The Fenn Manufacturing Company**

Hartford, Conn.

Cable Address "Fenn"—Western Union Code

## Ott Grinders

Combine the essentials of  
ACCURACY and RIGIDITY  
with SIMPLICITY of design

Simplicity accounts for their price, and for  
their popularity among good operators.

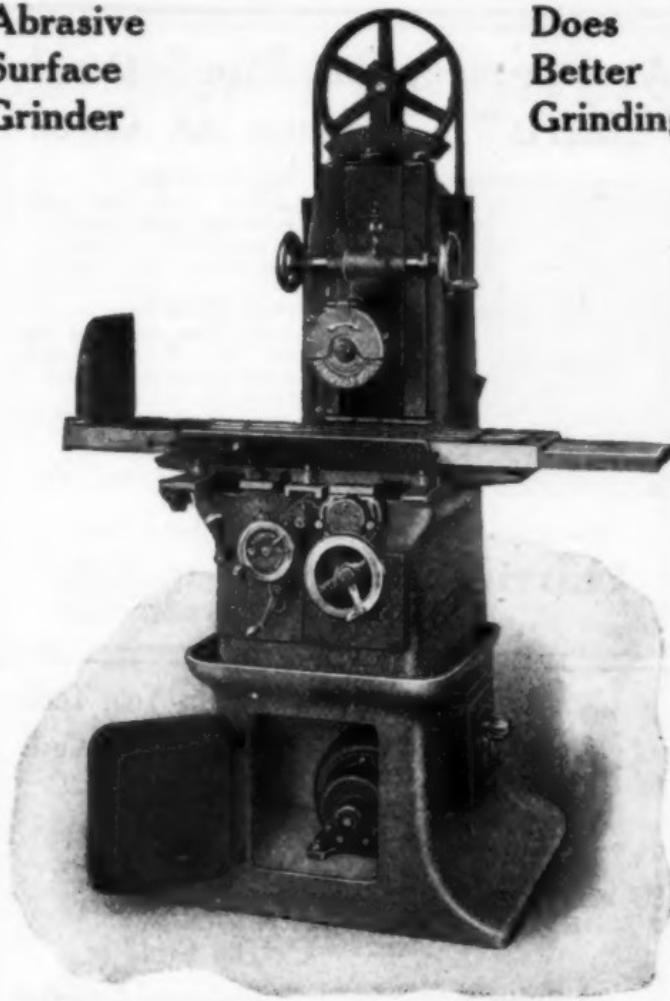
5<sup>1</sup>/<sub>2</sub> x 18<sup>1</sup>/<sub>2</sub> Plain — 10<sup>1</sup>/<sub>2</sub> x 32<sup>1</sup>/<sub>2</sub> Universal — 6<sup>1</sup>/<sub>2</sub> x 6<sup>1</sup>/<sub>2</sub> Internal

**Ott Grinder Company**

200 West Tenth St., Indianapolis, Ind.

**Abrasive  
Surface  
Grinder**

**Does  
Better  
Grinding**



**Greater Grinding Efficiency**

is yours with the Abrasive Tool Room Surface Grinder. The frame is a heavy, one-piece casting, and as the machine has about twice the weight of an ordinary tool of this kind, the greater rigidity enables you to obtain greater accuracy. Let us mail you the full details of this superb machine.

**ABRASIVE MACHINE TOOL CO.,** East Providence,  
RHODE ISLAND

## An Operator Can Run Several "Harris" Grinders At Once



This HARRIS Precision Automatic Hob and Cutter Grinder is in a class by itself for operating quickly and perfectly. It eliminates the risk of imperfect grinding and spoiled temper through hand grinding.

Being automatic, it does not need constant attention—one operator can run several grinders at once.

*Saves your expensive H. S. hobs and form cutters.*

Has simple "set up." Ample lubrication.

*Our interesting Folder H. K. describes it fully*

**Harris Engineering Co.**

Bridgeport, Connecticut



Keep Up Your Tools  
Keep Down Your Costs

with

*Grand Rapids  
Drill Grinders  
Tap Grinders  
Universal Grinders*

which

Give Perfect Results

Catalog on Request

**Grand Rapids Grinding Machine Co.,** 17 Ottawa Ave., N. W.  
Grand Rapids, Mich.

# The "Miller" Wheel Dresser

An Invaluable Cost-Reducing  
Grinding Wheel Accessory



Ordinarily much time, labor and power are wasted in the "truing up" of worn or warped grinding wheels. The Miller Radius and Angle Grinding Wheel Dresser cuts out all this expensive and needless loss.

Forms radii from  $0^{\circ}$  to  $1\frac{1}{4}^{\circ}$  concave or convex. Also dresses any angle or form required. "Trues up" wheels up to  $12^{\circ}$  in diameter. Diamond can be set at right angles through three splines in tool post. Center height adjustment  $2^{\circ}$ . Distance of measuring post to pivot center is  $3^{\circ}$ . By a simple calculation the desired concave or convex can be made quickly and correctly.

For enabling you to make a heavy cut in the high cost of grinding the "Miller" can't be beat. *Why not let it both earn you many good dollars and insure quality production?*

**Otto A. Miller & Sons**

408 Mifflin Bldg., Detroit, Mich., U. S. A.

## **Brush Finish to Auto Bodies!**

**A Better Finish in Less Time**



**Over  
20,000  
outfits  
in use**

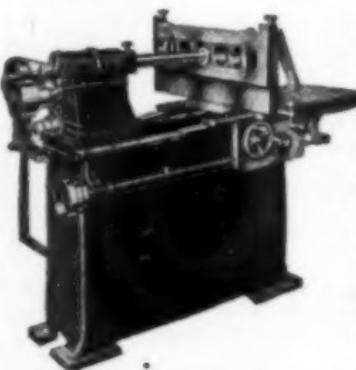
**Over  
200 in  
one plant  
alone**

STOW FLEXIBLE SHAFT NO. 4, with  $\frac{1}{2}$  h. p. motor, driving a 6" wire brush on a sheet aluminum auto body, conditioning it for painting. Also grinds, reams and drills. *Order early!*

**STOW FLEXIBLE SHAFT CO.,** 28th & Callowhill Sts., Philadelphia, Pa.

## **"Schmidt" Internal Grinder**

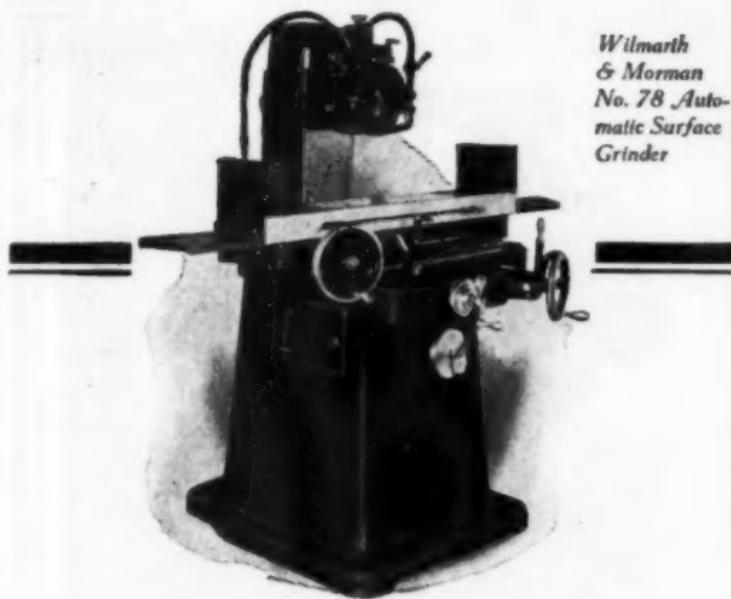
**Grinds All Cylinders Perfectly**



Invaluable for the fully equipped automobile and tractor repair shop. Will reground four Ford blocks a day—larger cylinders in proportion. Vanadium steel arbor. Ball-bearing rocker arm counter-shaft and ball-bearing in rear end of emery wheel spindle. The "SCHMIDT" is simple, compact, economical.

*Gives top-notch service with rock-bottom economy*

**B. L. Schmidt Co., Dept. A 8, Davenport, Ia.**



*Wilmarth  
& Morman  
No. 78 Auto-  
matic Surface  
Grinder*

## **Speeds Production**

Wilmarth & Morman Precision Grinding Machinery is serving indispensably in the world's foremost shops and plants. The No. 78 Automatic Surface Grinder, illustrated above, meets the requirements of plants having need for an extremely accurate machine for gauge and tool work, as well as for die grinding and manufacturing.

*Write for our new catalog*

## **Wilmarth & Morman Co.**

**Master Grinder Makers**

1185 Monroe Ave., N. W., Grand Rapids, Mich., U. S. A.

# Whitney Cylinder Grinder

For grinding all kinds of Gasoline Engine Cylinders as well as work too large or too heavy to revolve.

Machines furnished to grind holes from 3" up to 7" diameter <sup>110</sup> and 14" deep. Also equipped to grind holes as large as 14" diameter and 20" deep.

*Write for new catalog*

**BAXTER D. WHITNEY & SON**  
Incorporated  
WINCHENDON, MASS., U. S. A.



# Will Do ALL Your Grinding

Better—Quicker—Cheaper



The Thompson 10x36 Universal Grinding Machine

You will find to your profit that it has no equal for doing quickly and accurately plain grinding for straight or taper work between centers, and for surface, edge, die, cutter or internal grinding.

An exclusive feature of the Thompson Grinder is this—the grinding wheel is always maintained in a fixed position, while the table carrying the work is adjustable to any necessary position.

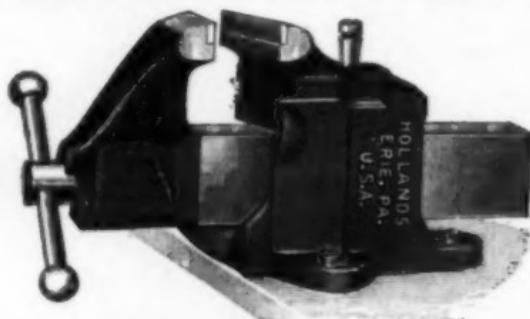
The rigidity, simplicity of adjustment and great ease of control—all delight the practical mechanic, while the superior output never fails to please the man responsible for results. Why not get acquainted?

## The Thompson Grinder Co.

Springfield, Ohio

# Hollands Vises

Have made good  
for 33 years

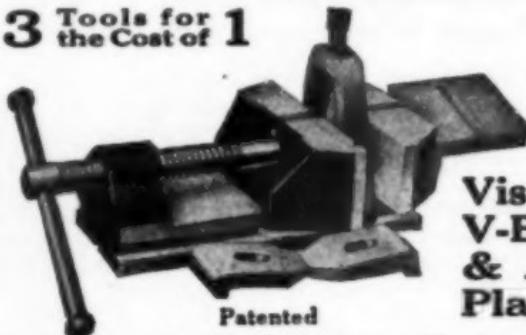


HOLLANDS VISES are made with solid or swivel jaw and stationary or swivel base, and each is a leader in its class. Mechanists' Vises, Filers' Vises, Woodworkers' Vises—what do you need? Write for latest price list.

Hollands Tool Co., (*Established in 1887*) Erie, Pa.

## G-S Combination Vise

3 Tools for 1



Saves  
time.  
Makes  
accurate  
work  
easy.

Vise  
V-Blocks  
& Angle  
Plate

Patented

Takes the  
place of  
costly jigs

No. 1.....Dimensions.....	No. 2	
5"	Jaws Open.....	7"
2½"	Depth of Jaws.....	3"
8"	Width of Jaws.....	9½"
1½"	Jaws Overhang.....	2"
65 lbs.....	Weight.....	105 lbs.

Sent on  
30 days'  
trial.  
Write for  
literature

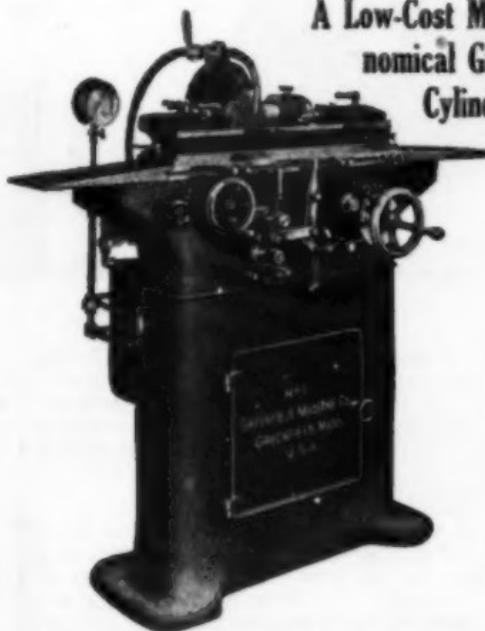
GERMANOW-SIMON MACHINE WORKS

58 MICH ST.  
ROCHESTER, N.Y.

*The* Greenfield

# No. 1 Plain Grinder

A Low-Cost Machine for the Economical Grinding of Small Cylindrical Parts



A machine that's right in line with present-day economies, with its low first cost, low operating cost, and its BIG OUTPUT

The Small Grinder with the Rapid Cut

THE TABLE FEED is simple and wonderfully efficient, permitting two to three times as rapid cuts as on larger machines. That is one of the main reasons why this small, low-priced grinder is such a big producer. It makes up in speed for what the larger, much more expensive grinders have in depth of cut, and it is better adapted to the work within its capacity.

*Ask for particulars and send sketches or parts  
for cost estimate*

**Greenfield Machine Company**  
Greenfield, Mass., U. S. A.

*Also Manufacturers of the Greenfield Universal Grinder*



## DUMORE No. 1 GRINDER

THE Wood Turret Machine Company of Brasil, Indiana, uses the DUMORE High Speed Grinder in many ways which readily show its real merit—in grinding the head of the Wood Turret Lathes for example, and in finishing spindle ends, etc.—the high speed of the DUMORE giving a result much superior to that obtained from slow speed grinders.

Here is a tool in which perfect running balance is combined with correct cutting speed. With a DUMORE in the shop there is no costly tearing down of jobs—no wasteful delay. It is set up easily and quickly wherever it is needed. The DUMORE can solve your grinding problems. It is the only tool on which you may surely rely for speed and accuracy.

Your dealer sells DUMORE Grinders  
Ask him for a demonstration.

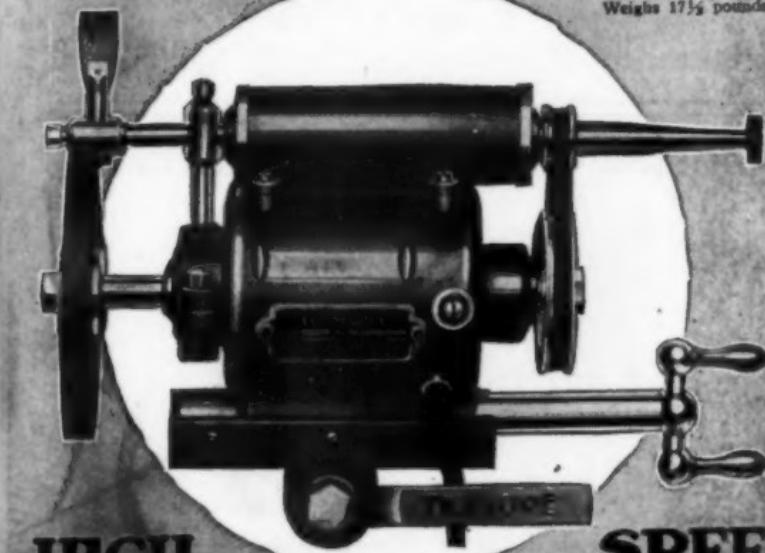
WISCONSIN ELECTRIC COMPANY  
4329 Sixteenth Street                    RACINE, WISCONSIN

# DUMORE

# Machine Tool Builders Use the DUMORE



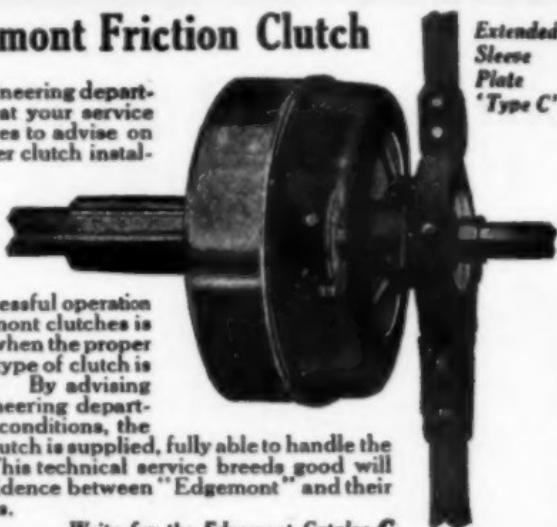
EQUIPMENT A  
For general tool room use  
Includes High Speed Internal Spindle A with reach  
of 3 inches. 30,000 R.P.M.  
Comes fully equipped.  
Weighs 17½ pounds.



HIGH SPEED  
**GRINDERS**

## Edgemont Friction Clutch

Our engineering department is at your service at all times to advise on the proper clutch installation.

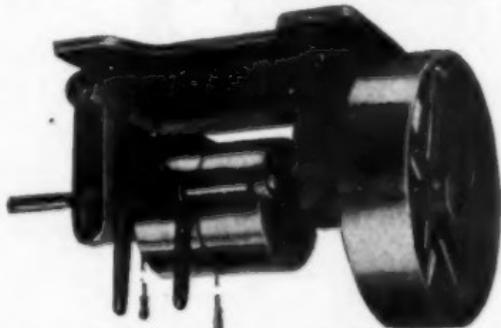


The successful operation of Edgemont clutches is assured when the proper size and type of clutch is selected. By advising our engineering department of conditions, the proper clutch is supplied, fully able to handle the drive. This technical service breeds good will and confidence between "Edgemont" and their customers.

*Write for the Edgemont Catalog G*

**Edgemont Machine Co., Inc., DAYTON,  
OHIO**

## Workwell Countershafts



This is a high grade countershaft. The main casting is one piece, babbittted with high speed babbitt. It cannot get out of alignment, which has always been a great trouble in the old style countershafts by binding the bearings and burning them out. This trouble is entirely eliminated in our design.

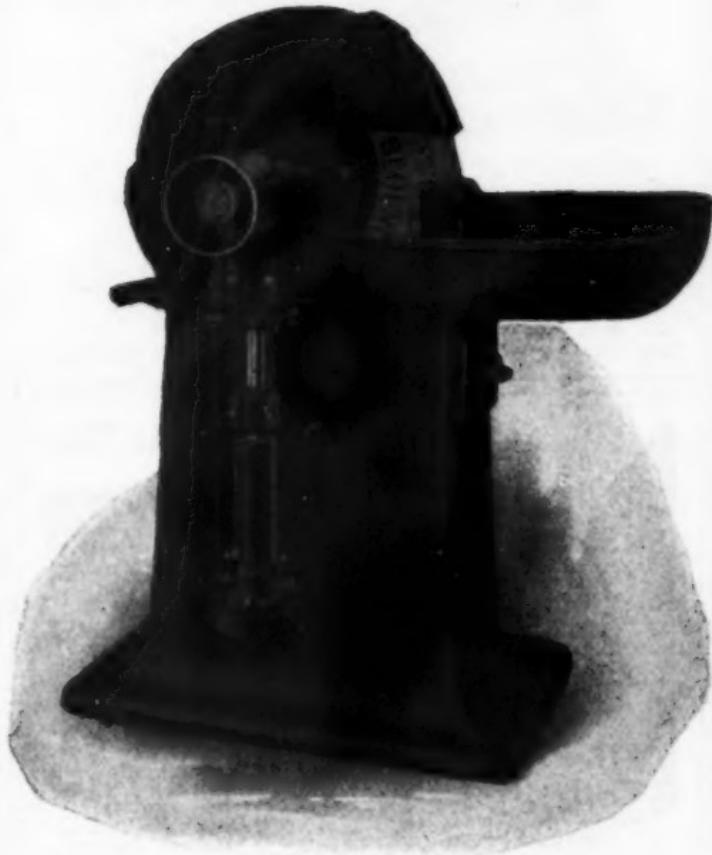
These countershafts are made in three different sizes, Types G1-G2-G3.

**Workwell Engineering & Mfg. Co.**  
Dept. 3. - - - 4145 W. Kinzie St., Chicago, Ill.

# **GRIND IT**

## **On a BLOUNT**

**20" Wet Tool Grinder**



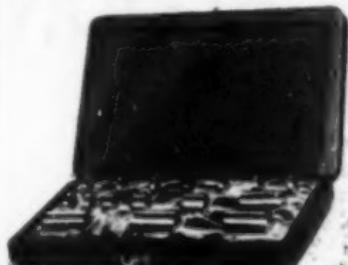
*Catalog on request*

Blount Wet Tool Grinders are built in three sizes for 14", 20" and 30" Grinding Wheels respectively.

**J. G. BLOUNT CO., Everett 49, Mass.**

# Van Keuren Gages

A Quality Product, that solves the problem



Set MT MICROGAGES—\$35.00  
in *thousandths*. Gages are  
finely finished. Standardized by  
light waves, and guaranteed accurate within 25 Millions of an inch.  
You will be more than satisfied with this set.

*Van Keuren Reference Gages* are of the highest type  
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**OK-VK Microgages.**—  
The high quality, combination  
gages for use on production work.

They start work right; prevent  
mistakes, spoilage and rejections.

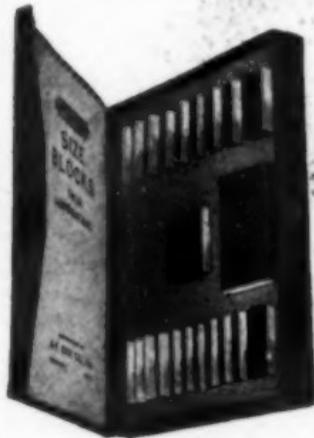
Arranged in sets for workmen  
and every shop requirement.

This set gives 5000 combinations  
in *thousandths*. Gages are  
finely finished. Standardized by  
light waves, and guaranteed accurate within 25 Millions of an inch.

## INVESTIGATE TODAY

Light Wave Equipments      Modern Measuring Devices

**THE VAN KEUREN CO.**  
362 CAMBRIDGE ST., ALLSTON,      BOSTON, MASS.



## Mighty Useful Tools

**LOWAY**

### Size Blocks

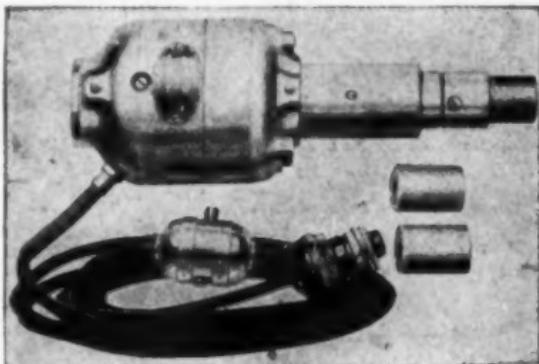
Invaluable for setting up work  
accurately on the planer, shaper,  
miller, etc. Their price is so  
moderate that you can afford to  
check them out from the tool  
crib like other tools. *They save  
costly master gauges.* The  
table provided enables you to  
quickly secure any dimension.

Four sets, including one in the metric scale. Write for Circular

**A. F. WAY CO., Inc., Hartford, Conn.**  
Export Department, 77 Broad St., New York City  
*Makers of "LOWAY" Sine Bar and Sine Square*

# The Precision Truing Machine

A Device for Truing and Dressing Grinding Wheels

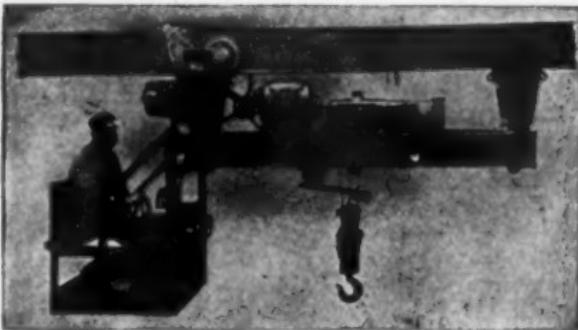


Can be applied to any cylindrical grinder.  
Operated off lamp socket, a. c. or d. c. either 110 or 220 v.  
Eliminates the use of diamonds.  
Reduces truing expense.  
Will produce more work and better work.  
Gives a freer cutting wheel.  
Increases the life of the grinding wheel.



*Ask for Circular H7*

**The Precision Truing Machine & Tool Co.**  
Cincinnati, Ohio



## Euclid Hoists

can be made a big factor in reducing your costs by speeding up material moving and cutting the pay roll.

*Write for catalogue today*

**The Euclid Crane & Hoist Co.**  
**EUCLID, OHIO**



## NORTHERN Type D ELECTRIC HOISTS

will eliminate  
wasteful labor.

A. C. or D.C.— $\frac{1}{2}$  to 10 Ton

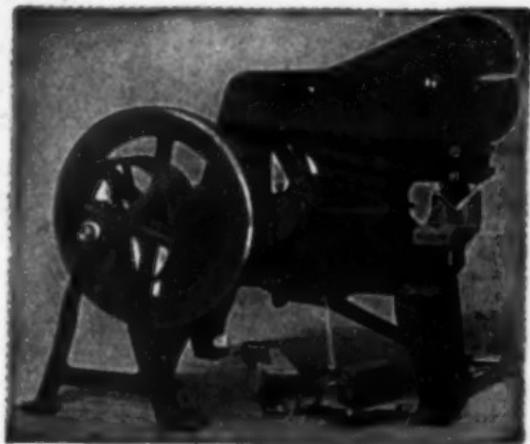
Many other types

**NORTHERN  
ENGINEERING WORKS**

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Makers of "Northern Cranes"

Punches—Shears—Bending Rolls  
The Beloit  
Combined Power Punch And Shear



Built in six sizes. Nos. 51, 52, 53, 54, 55 and 56

Direct connected motor or belt drive

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

*Write for catalogue and prices*

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100 S. State St., Beloit, Wis.

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Registered in U.S.A. and Foreign Countries

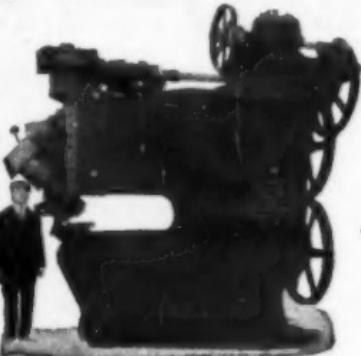
## Rotary Shears

### Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

### Save 50 to 90%

Eliminates Oxyacetylene cutting and plate planing



Write for catalogue No. 60

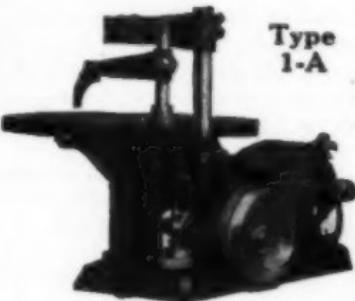
Patented June 3, 1913; Aug. 26, 1919.

**THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.**  
Cable Address "Quickwork," "W. U." and "General" Codes

## J & B Filing and Sawing Machine Doubles Output and Cuts Costs

In these days of close figuring, this simple and productive filing and sawing machine saves its costs in a short time. An apprentice turns out more and better work than a first class machinist can by hand filing.

On many jobs it insures a direct saving up to 60%. It can operate where file does not go thru or past work, or where file has to groove out a shoulder.



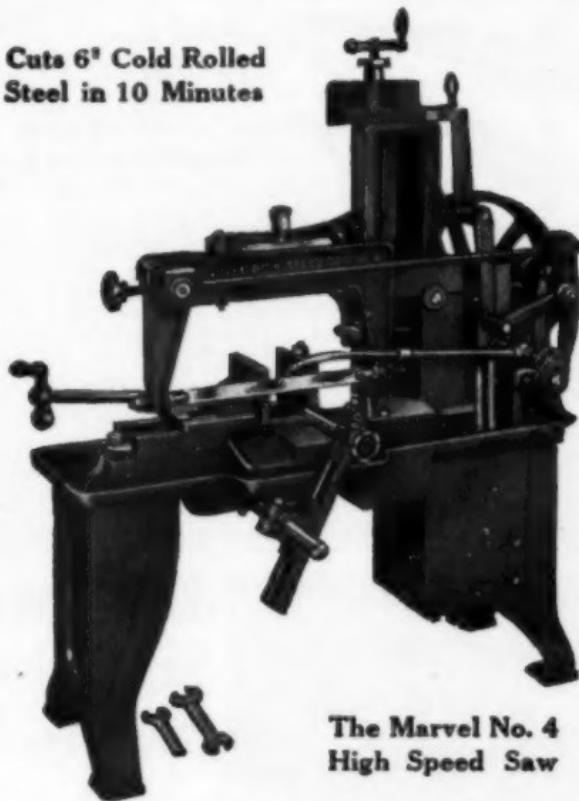
30 DAYS' FREE TRIAL

Return at our expense if not the time saver we claim

**JOHNSON & BIDDLE TOOL CO., ELKHART, INDIANA**

# A Marvel of Speed and Economy

Cuts 6" Cold Rolled  
Steel in 10 Minutes



The Marvel No. 4  
High Speed Saw

Consider the speed and other improved features of this machine. The blade is always horizontal. Cuts on the draw stroke, with quick return. Adjustable stroke 4" to 6½". Automatic stop at any desired depth of cut. Takes 3" belt. Also furnished motor driven.

*Marvel Hack Saws and Metal Band Saws for every need,  
and each the leader in its class. Write for Catalog.*

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123

## Now Is The Time To fix up your shop



If you are not very busy, now is the time to arrange your shop to meet improving conditions. Labor costs must be met with other economies.

### "THE HANDIEST RACKS"

For Pipe, Shafting and Bars are a practical necessity in the well-managed shop. They permit the neat piling of this awkward stock in a fourth the space, where it may be kept assorted and counted and easily handled on or off. They save time, space and money, and make a messy stock neat.

*So good that we  
ship them on trial*

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503 Mahoning Road, N. E., Canton, Ohio



**Save Time  
Save Labor  
Save Tools**

by

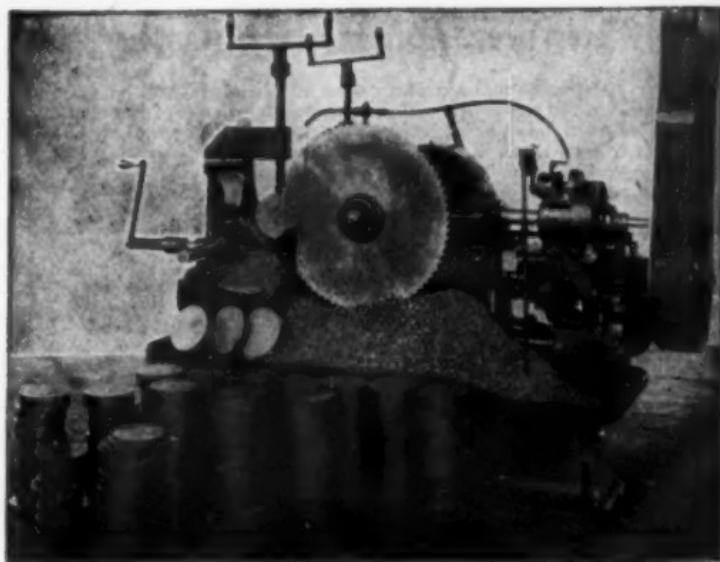
**Supporting your  
long stock**

On the "**ANYHITE**" Adjustable Stock Support, for Hack Saw, Drill Press, Punch Press, Pipe Machine, Milling Machine, Screw Machine, Shaper, Planer, or for Racking Heavy Shafting or Tubing.

We will send you one on 30 days' trial. Price \$15.00 for Standard Height. Special sizes built to order.

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Orrville, Ohio

# Cochrane-Bly No. 5 Cold Saw



**144 Blanks  $5\frac{1}{4}$ " Diameter Cut on This Machine in 8 Hours.**

**Actual Cutting Time Was 3 Minutes and 10 Seconds Per Cut.**

**Will Also Cut in Multiple at one Time**

76 Bars	$\frac{1}{4}$ " Diameter
26 "	1 "
13 "	$1\frac{1}{2}$ "
8 "	2 "
4 "	$2\frac{1}{2}$ "

**Five Sizes to Suit All Requirements up to  $8\frac{1}{2}$ " Round Bar.**

*Write for Catalog*

**Cochrane-Bly Company**  
**Rochester, N. Y.**

# Slashes Cutting Tool Costs

## Peter Bros. Abrasive Metal Cutter

It is invaluable in the tool room for cutting off high speed and hardened tool steel. *It not only effects a clear saving of 75% in time, but prevents waste of steel involved in nicking or breaking.* Easily, quickly and accurately cuts off reamers, taps, forming tools, or brass, copper and aluminum rods. It is a gilt-edged investment.

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Splendid for tool room. Cuts high-speed steel up to  $\frac{1}{2}$ " square.

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Cuts up to  $\frac{3}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

**15 Days' Free Trial**

Write us or ask your dealer

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115 Railroad St., Algonquin, Ill.



# The Gray Sheet Metal Cutter



*"Tell us who uses it and we'll tell you how good it is"*

Its users include the best concerns from New England to California, such as American Radiator Co., Victor Talking Machine Co., United Shoe Machinery Co., General Electric Co., American Locomotive Co., Union Hardware Co., Ford Motor Co., etc., etc. Send for long list of prominent users and testimonials.

The four sizes cut  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ " and  $\frac{5}{16}$ " plate, any intricate pattern, easily, quickly and cheaply, leaving edges smooth and metal flat.

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Alfred Herbert Ltd., Exclusive Foreign Representatives.

**"Upstanding Quality"**

## **T. H. L. Front Lever Bench Punch**

**Makes Clean Holes and is  
Built for Hardest Service**

**Price \$60**

Extra Punches, 35 cents each,  
\$3.75 per dozen. Extra Dies,  
40 cents.

Capacity 13/32" hole thru 1/4"  
steel, or 11/32" thru 5/16" steel.

**Weight 70 lbs.**

Adjustable gauge. Punch cannot  
lose alignment with die. Made of  
best materials. All parts inter-  
changeable.



## **"T.H.L." Quality Punches and Dies**

They're accurate, durable  
and highly productive.  
Quality of steel and per-  
fect INDIVIDUAL tem-  
pering, backed by 30 years'  
experience in punch-mak-  
ing explain their superior  
merits.

*Why don't YOU try them?*

**T. H. Lewthwaite Machine Co.**  
**417 East 31st St., (Est. 1890) New York City**  
**'Phone, Murray Hill 3117**

Complete Line of  
**Willard Power Presses**



(Inclinable Open Back)

**For Efficient, Economical  
Sheet Metal Press Work**

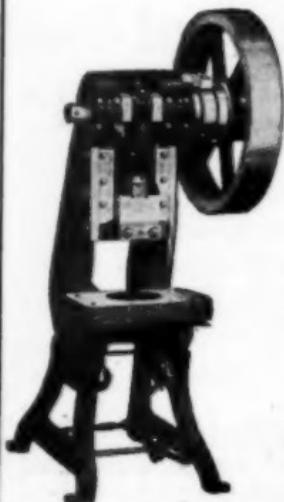
Built for hard service and embodying the latest power press improvements. All parts practically interchangeable. High grade steel shaft capable of withstanding the heaviest strains. Latch has positive safety stop making it impossible for press to "repeat" until the treadle is pulled clear down.

**Powerful--Accurate--Durable**

*Full details on request*

**The Willard-Middletown Machine Co.**  
Cincinnati, Ohio  
Successors to The Willard Press & Tool Co.

## Here Is A Press



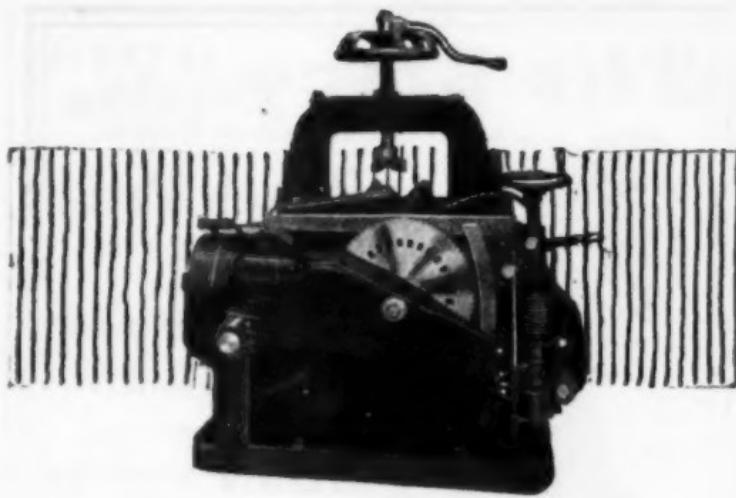
With Plenty of Steam  
Back of THE PUNCH

HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Made in straight side and inclinable types. Their great power backed by rigid design enable them to do the work you demand and stand up to it.

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**Rockford Iron Works**  
Rockford, Ill.



## These Are The Reasons

why a Lea-Simplex Cold Saw is better equipped to render continuous efficient service:—

- 1—**Ensures Rapid Production.** The "Lea-Simplex" is designed and built for quick preparation for the cut, rapid location of the blade, maximum cutting speed, fast feed and automatic stop with power return of the blade upon completion of the cut.
- 2—**Variable Feed.** The "Lea-Simplex" Cold Saws are built with quick change gear feed. The feed varies from  $\frac{1}{2}$ " to  $1\frac{1}{2}$ " and the rate of feed can be changed while the Saw is cutting, without stopping it.
- 3—**Easy to Operate.** The "Lea-Simplex" is built with centralized control. All operating levers can be reached from one point. One attendant can operate several machines by using the automatic stop. Satisfactory results can be produced with low-priced labor.

*There is more to the story of this Saw. Write us for further details.*

Made by the EARLE GEAR AND MACHINE COMPANY, PHILADELPHIA, PA.

Distributed by

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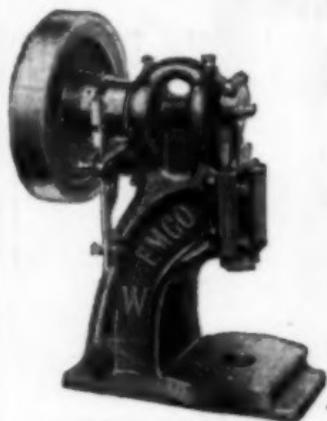
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Fairbanks Scales, Trucks & Wheelbarrows, Valves, Gaskets & Fittings,  
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Bench Power



## Punch Press

NOW MADE IN  
3/8, 1/4 or 1/4" stroke

### Record Production:

114,000 operations in  
11 hrs. by hand feed

Also Emco "V" Bench

### HORN PRESS for ASSEMBLING

It Won't Repeat

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The Enterprise Machinery Co., 28 S. Clinton St.  
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We are well equipped to do your  
**Enameling, Stamping,  
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Electric Spot Welding**

At Reasonable Prices

*Get in touch with us.* All of our work is under the care of experts, and it is more than likely that our facilities for economical production will enable us to *do your work cheaper than you can.*

**Chicago Ferrule & Nut Co.**

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# Partridge Light Punch Press

For making novelties from sheet metal, including such operations as stamping, blanking, piercing, bending, forming, perforating, embossing, shearing and wire cutting. Has exceptional strength for its size.

Carefully adjusted to secure accurate working of the dies, and to prevent shearing. Pendulum action of lever gives a stroke of maximum power without tiring operator. Workmanship and material the best.

*Write me for the interesting price*

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Also Bench, Column & Cabinet Grinders, Polishing Lathes, Light Punch Presses, Hollow Mills, Countershafts, Chuck Arbors and Saw Mandrels

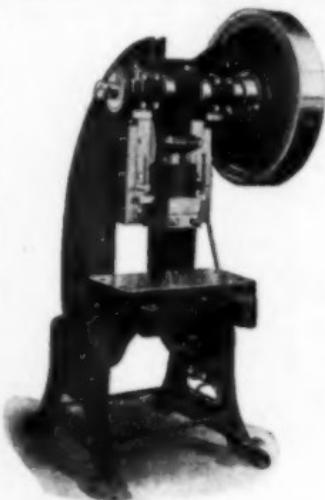


## L-J Inclinable Fly Wheel Press

This No. 4 Press has a capacity of 34 tons. It is accurate and rapid. Other sizes; also built in geared head and combination types.

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*Write to the nearest, or*

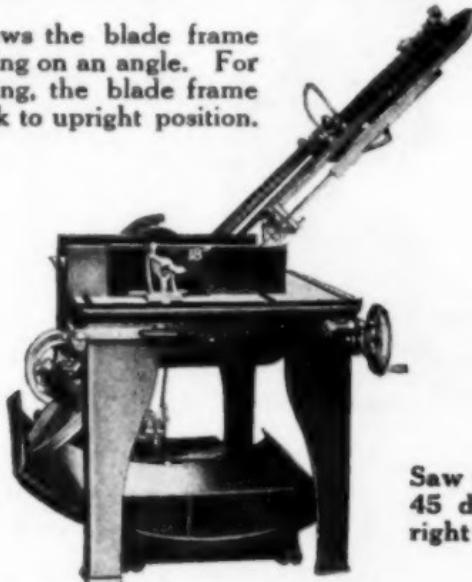
**Loshbough-Jordan Tool & Mch'e. Co.**  
**Elkhart, Indiana**

Saves Time, Stock and Money

# Marvel Metal Band Saw No. 8

## A Universal Saw of Great Capacity

The cut shows the blade frame tilted for cutting on an angle. For ordinary cutting, the blade frame is moved back to upright position.



The Marvel No. 8 was designed (1) to do an unusually wide range of metal cutting, and (2) to do that work with the greatest possible economy of time and metal. It saves money by its economies, and it makes money by doing its part in increasing output.

The construction throughout is high grade. Saw Blade Guide Rollers are double ball bearing, with felt dirt-proof rings, and are imbedded in cast-iron cases. Knock-off Dog shifts to stop machine at any depth of cut. Has perfect lubrication at cutting point. Provided with liberal guard protection. Saw speeds of 80, 115 and 200 feet per minute obtained by 3-step cone. Also furnished motor-driven if desired.

*May we send Catalog of the "Marvel" Line of Metal Saws?*

**Armstrong-Blum Mfg. Co.**  
341 N. Francisco Ave., CHICAGO, ILL.  
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For General Forging

Saves Fuel, Time and Labor,  
Cuts Forging Costs in Two.

Belt or Motor Driven

**Beaudry & Co., Inc.**  
45 Bromfield St., Boston, Mass.

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Riveting Hammers  
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Jam Riveters  
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Holders-On  
Sand Rammers  
Valveless Drills  
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Keller-Made  
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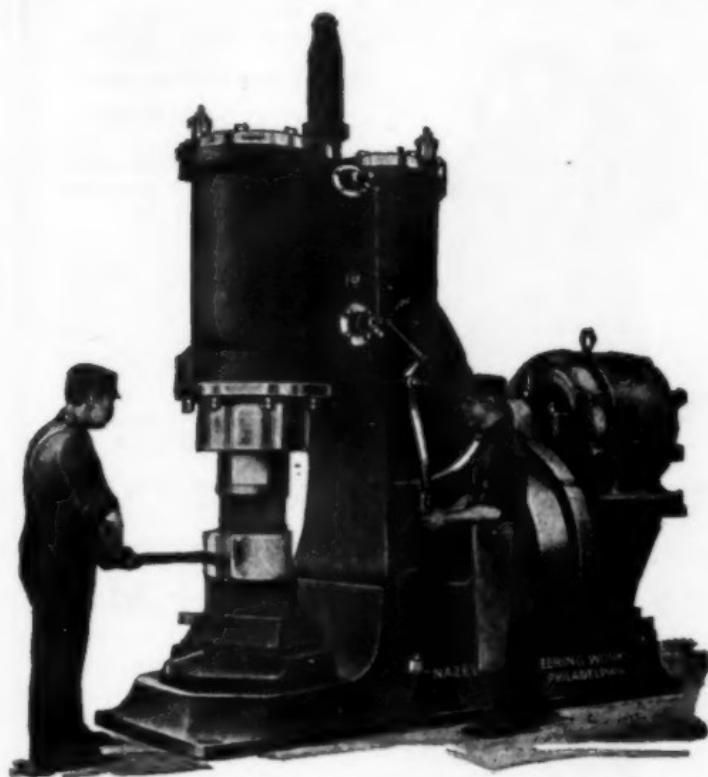
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BRANCHES EVERYWHERE

# The Nazel Air Hammer



## Noted For Its Blow And Control

A self-contained unit, HAMMER AND COMPRESSOR COMBINED, built in three types, six sizes arranged for BELT OR DIRECT MOTOR DRIVER, with capacities up to 7 inches square, for all manner of jobbing, manufacturing and certain classes of drop forging.

*Write for the Nazel Hammer Book; it's yours for the asking.*

**Nazel Engineering & Machine Works,  
Nicetown, Philadelphia, Pa.**

# The Etna Rotary Swager



**Delivers 50 Blows  
And Over Per Second**

Invaluable for the more rapid and accurate reduction of round stock. All work is turned out perfectly circular, without waste of material or defacement.

The ETNA method toughens, solidifies and makes metal more resiliant. Beats power hammer production by 500% and upwards.

Regular sizes swage  $\frac{1}{4}$ " to  $4\frac{1}{2}$ " diameter. Special sizes to order within reasonable limits.

*Catalog showing production records sent on request*

**The Etna Manufacturing Co., TOLEDO,  
OHIO**

## **"You've Got To Show Me"**

That's just what

## **The Grant Rotary Rivet Spinner**



will do. Send along one of the toughest samples of your riveting jobs and we'll gladly show you a little of its exceptional efficiency.

*Clinches one rivet per second.* It not only offers a 500% increase over hand riveting but it operates in *perfect silence*. No more thunderous, nerve-racking clatter. An unskilled operator handles it easily.

*Here's a good way to cut riveting costs*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

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## The Utmost in Punch Values

The secret of their unusual production capacity lies in the quality of steel used and the perfection of their temper. Why not send us a trial order, that we may add you to our list of satisfied customers?

## Sheet Iron and Rod Cutter

This handy tool is compact, convenient and easy to operate. For all sheet metal, blacksmithing, and boiler shops it is indispensable. It has power to do easily shearing and cutting even beyond its rated capacity. Pays for itself in a comparatively short time.

Also

Pipe Benders  
Bar Benders  
Power Presses  
Foot Presses  
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BAR SHEARS, 1½" capacity and smaller.

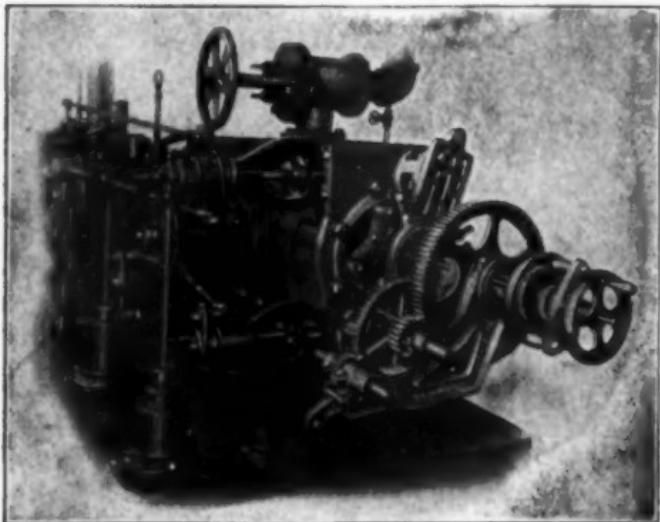
PLATE SHEARS, ¾" capacity and smaller.

Get our Catalog of Iron-Workers' Tools for handy reference

**George A. Lewthwaite Co.**  
116 Walker St., - - - New York

# Bores In Any Position

Saving Time, Money and Labor



## Underwood's Portable Bar Boring Corliss Engine Cylinder

(With only one head off)

**J**UST THINK of reboring cylinders in less time than it would take to remove them, with all connections and bolts left intact. This economy tool bores all kinds of engines, steam hammers, pumps, air compressors, Corliss valve seats, etc., in place.

The Underwood is readily operated in a space which allows the taking of the piston out of the cylinder. The bar has fixtures for boring in any position, and in cramped places. We can build to order to fit your exact requirements.

### Our line of Portable Tools includes:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners; reflex water glass grinders; and special machines built to order.

*Our Catalog shows many economy tools—write for a copy*

**H. B. Underwood Corporation**

1015-25 Hamilton St., Philadelphia, Pa.

## Second-Hand Machinery

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

**Write directly to those offering the machines for sale** for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool List advertisers.

### FOR SALE BY

**The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.**

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13"x 5' South Bend, c. r.  
14"x 6' Von Wyck, c. r.  
15"x 6' South Bend, c. r.  
16"x 8' Lodge & Shipley, compound  
rest, patent head.  
16"x 8' Hamilton.

16"x 6' Hamilton, c.r. & t.a., std. pat.  
**TURRET LATHES AND SCREW MACHINES.**  
1" Millholland, plain head.  
24"x10" Millholland, g. f. h., p. f.  
14" Garvin, g. f. h., p. f.  
11" Lodge & Davis, plain head.  
24" Davis turret boring and chucking lathe, with forming rest.  
22" Lodge & Shipley heavy duty  
turret boring lathe.

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No. 1 Burke, bench, (2).  
4 spdl. Barr, pl. bearing, sensitive.  
Single spdl. upright sensitive, (2).  
24" Baker, hvy. duty, sta. head.

#### MILLING

Bench miller on column, with c. s.  
No. 1 U. S. hand, 3 st. cone, c. s., (5).  
No. 15 Garvin plain, b. g.  
No. 22 Garvin, vertical spindle.  
No. 18 Kearney & Trecker, univ.

#### GRINDERS.

No. 10 Cochrane-Bly auto. bench  
saw filing machine.  
12"x66" No. 4 Landis univ., complete.  
No. 1 Brown & Sharpe, univ., (2).  
No. 2 Oakley, univ. (practically new).

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No. 2 High speed riveting hammer.  
Coffman post pwr. dr. hammer 25 lbs.  
Cady belt drop hammer, 100 lbs.

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Excelsior power hack saw.  
12" Burke metal cold saw.  
Higley cold saw.

No. 1 Racine H. S. Hack Saw.  
No. 14 Higley cold saw.

#### PUNCH PRESSES.

No. 11 Badger, hand.  
**GEAR CUTTERS**

No. 13 Brown & Sharpe auto., (2).

#### MISCELLANEOUS.

Boring mch., 23" swing, Star horiz.  
Broaching mch., No. 2 Lapointe.  
Crane and hoist, Canton No. 3.  
Planers 22"x22"x5" Putnam, 1 hd., (3).  
Planer, 22"x22"x5" Gray, 1 hd.

Polishing lathes, City Machine Co.  
Tapper, 1" Burke, bench.  
Tapper, 1" friction vertical bench.  
Tappers, 1" Rickert-S. horiz., (2).

## SECOND-HAND MACHINERY

### FOR SALE BY

**Walther Machinery Co.,**      **629 Main St., Cincinnati, Ohio**

Drill press, D-3 Colburn heavy duty, used.  
 Drill presses, U. S. sensitive, motor driven, d. c., 230 v., (2) used.  
 Drill, 8-spindle multiple, No. 4 Morse, used.  
 Lathe, 13"x6" Willard d. b. g., s. q. c., c. d., used.  
 Millers, Whitney hand type, (3); motor driven, d. c., 230 v., (2) used.

### FOR SALE BY

**Frank H. Parker Company.**      **First Nat'l Bank Bldg., Chicago, Ill.**

Boring mill, 34" Bullard.....	Lathe, 36"x14' New Haven....	\$ 500.
Lathe, 14"x6" Blaisdell.....	Milling machine No. 2 plain.....	900.
Lathe, 15"x6" Davis.....	Milling Machine No. 2 univ.....	1200.
Lathe, 15"x8" Reed.....	Planer, 56"x60"x26'.....	4000.
Lathe, 18"x10' Fitchburg.....	Planer, 40"x40"x14'.....	2500.
Lathe, 22"x8" Boyd.....	Planer, 14"x14x48".....	200.
Lathe, 26"x16' Fiefield.....	Press, No. 924E Toledo(new).....	2700.
Lathe, 30"x12' New Haven ..	Press, No. 52 Toledo.....	350.
Notice: Have just bought complete plant with 44 machine tools; cost new \$10,000, will sell all for .....		\$ 4900.

### FOR SALE BY

**H. D. Warner,**

Air compressor, Sullivan, cap. 3150 cu. ft., nearly new.	
Annealing furnace, large, for stampings in large lots.....	\$1200.
Automatics, # model B Cleveland, (4) each.....	250.
Automatic, 14" Cleveland.....	350.
Automatics, 34" Cleveland, (2) each.....	1200.
Automatics, 9/16" Acme multiple-spindle, (4) each.....	200.
Automatic, No. 55 1/2" Acme multiple spindle.....	800.
Automatics, 34" Gridley, (10) each.....	750.
Backing-off mch., Cleveland.	
Boilers, Manning patent vert., 250 h. p., 160 lb. pressure, (4).	
Boring machine, Betts hor. 42"	
Boring & turning mch., 42" Putnam vertical car wheel.	
Boring & turning mch., 34" Sellers vert. car wheel, (2).	
Chuckling machines, No. 24 4-spdl. New Britain, (6) each.....	2600.
Chuckling machine, No. 33 New Britain.	
Crane, 10-ton electric traveling.	
Die sinker, Pratt & Whitney old type No. 2.....	250.
Drill press, 3-spdl. Taylor & F.	
Drills, single-spindle sensitive, new, (2) each.....	80.
Drill, Detroit 5-spindle hor.	
Drill, Baush multiple-spindle	
Fire extinguishers, 40-gallon Badger, on wheels .....	250.
Grinder, Blanchard vertical.	
Grinders, Bryant chucking, (4) each.....	700.

**57 May St., Hartford, Conn.**

Hammer, 80-lb. Bradley helve	\$800.
Lathes, P. & J. old type turret (3) each.....	300.
Millers, Becker large hand, (5) each.....	150.
Millers, 12" Pratt & Whitney light auto., receding & quick return table, (12) each.....	400.
Millers, No. 2 Pratt & Whitney Lincoln type, (5) each.....	100.
Millers, No. 12 Pratt & Whitney Lincoln type, (6) each.....	200.
Molding machines, Tabor, (4).	
Planer, 30"x30"x8' Pond.	
Planer, 30"x30"x10' Putnam.	
Press, No. 16 Bliss horning.	
Press, No. 20 Bliss 3" stroke.	
Press, No. 20-C Bliss, 3" str.	
Press, No. 68-N Bliss.	
Press, No. 69-N Bliss back grd.	
Press, Perkins back geared, double action cam, weight about 22,000 lbs., comparative to Bliss No. 6 cam dbl. action.	3500.
Press, No. 73½ Bliss back grd., nearly new.....	1750.
Punch & shear, Lambertville.	750.
Separator, Dings magnetic.	
Shaper, Fitchburg 20" trav. hd.	500.
Shear, alligator, 24" sq. cold.	
Shear, squaring, 10' Ohl, pwr.	850.
Shear, plate, Ryerson bevel, new	1050.
Slitting mch., 16" Torrington.	800.
Tapping machine, Garvin vert-icp. new.	
Timeclocks, International, (10).	
Trimming & beading machine, No. 166 Bliss.	
Winch new.....	100.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Russell Machine Co., Inc., 28th St. & A. V. R. R., Pittsburgh, Pa.**

#### LATHES.

- 48" x 32" N. B. P., triple geared.
- 45" x 28" Niles, c. r.
- 45" x 26" Pond, triple geared.
- 36" x 15' 8" Niles, c. r.
- 28" x 12' Boye & Emmes, q.c.g., d.b.g.
- 27" x 12' Pittsburgh, dbl. b. g.
- 26" x 20' 6" Putnam, b. g., c. r.
- 26" x 16' 6" Walcott, q. c. g.
- 24" x 16' 6" Johnson lathe.
- 24" x 12' Ames, b. g., c. r.
- 22" x 12' Greaves-Klusman, q. c. g.
- 19" x 10' LeBlond, motor drive.

- 18" x 8' Sidney, q. c. g., d. b. g.
- 18" x 8' Rahn-Mayer-Carpenter.
- 15" x 8' Schellenbach, d. b. g., h. s.
- 14" x 8' Hendey, q. c. g.
- 11" x 8' South Bend, b. g.
- 9" x 42" South Bend.
- 24" x 6' Gisholt turret, 6" h. s.
- 24" x 6' Gisholt tur., 6" h. s., m. d.
- 22" x 8' Bullard turret lathe.
- 15" x 5' American brass finishers'.
- 14" x 5' American speed lathe.
- 13" x 5' Blount speed lathe.

#### PLANERS AND SHAPERS.

- 26" x 20" x 51" planer, 1 hd.
- 24" x 24" x 58" Chandler planer, 1 head.
- 45" x 48" x 22" Pond planer, 4 heads.
- 72" x 56" x 12" Betts planer, 2 heads.

#### DRILLS AND DRILLS.

- 20" Champion, new pl. & bk. gd.
- 20" Silver, new, plain and bk. gd.
- 36" Snyder b. g. drill.
- 40" New Haven, b. g. drill.
- 3", 4" & 6" Prentice radial drills.
- No. 3 Phoenix air drill.
- 10" Dwight-Slate sensitive, floor.

#### PUNCHES, SHEARS,

- 50" throat Reade sgl. end punch and shear; massive construction.
- No. 2 L. & A. twin punch & shear.
- No. 4 Doege & Kirsten alligator shear, cap. 4" round soft steel.
- Morgan plate shear, 96" bet. housings, cap. 1" thick.
- Garrison plate shear, cap. 1" x 81", m.d.
- Mesta plate shear, cap. 4" x 156".
- Knight s. e. punch, 8" thr., 4" x 1".

#### MILLING MACHINES.

- No. 2 Brown & Sharpe universal.
- No. 2 LeBlond universal.

#### MISCELLANEOUS.

- Air compressor, No. 0 Au-To 3" x 4".
- Air compressor, 8" x 8" hor. b. d.
- Band saw, Greaves-Klusman 36".
- Bender, Wallace No. 11 angle, hd. pr.
- Blower, Root No. 3 Acme, hand.
- Blower, Sturtevant, No. 4, volume.
- Blower, Buffalo No. 8 volume
- Blowers, Buffalo Nos. 5 and 8.
- Boiler, 24" x 5' vertical.
- Bolt cutter, Landis 14".
- Boring bar, Underwood portable cyl.
- Brazing table, all iron, 17" x 29" x 31".
- Chain belt, 16" x 8" x 14" p. and gear.
- Cold saw, Wagner, size 18 type 3.
- Cold saw, Gliem, 22" diam. 6" cap.
- Crane, 10" I-beam, 12' 5" span.
- Crimping machine for short work.
- Forges, Nos. 41-43 Champion new.
- Grinder, Greenfield cutter & tool.
- Grinder, Diamond No. 3 wet tool.

- No. 3 LeBlond plain.
- No. 6 Becker vertical, table 60" x 19".

- Grinders, Plymouth Nos. 13, 14, 17.
- Grinder, Barnes 20" wet tool.
- Hammers, 2500 lb. Chambersburg, double leg steam forging.
- Heading, upsetting and forging machine, 3" National.
- Hoist, contractor's steam, with 8 h. p. boiler & 5 h. p. engine.
- Index centers, 12" B. & S. univ.
- Metal lockers, 10 sections.
- Polishing stand, Diamond No. 2.
- Polishing stand, d. end, 42" x 1" arbor.
- Polishing stand, Cuyahoga dbl. end.
- Roll lathe, 20' long, suitable for 12", 14" and 16" rolls.
- Ripsaw table, 49" x 30", iron.
- Slotted, Niles 15".
- Straightening rolls, Cleveland, 84" x 10" dia.
- Trimmer, American No. 2, univ. wood.

## SECOND-HAND MACHINERY.

### FOR SALE BY

Niagara Sprayer Company,

Middleport, N. Y.

#### SCREW MACHINE.

One 2 $\frac{1}{2}$ ", 4-spindle National Automatic belt driven screw machine, serial number 8022, with number of collets and attachments. Purchased in March, 1920, and used only two weeks. Owing to change in product we have no use for this machine. Price \$3800 f. o. b. Middleport, N. Y.

### FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

#### DRILL PRESSES.

24" No. 25 Foote-Burt hvy. duty.  
22" G. & E. sliding head, (2).

4 sp. Allen high speed b. b. drill.

#### LATHES.

10"x4" Reed.  
14"x6" Sebastian.  
18"x8" Whitcomb Blairstell, q. c. g.  
16"x10" Prentice, q. c. g.

20"x14" Putnam.  
24"x12" Lodge & Shipley, q. c. g.  
30"x14" Niles.  
32"x24" Fay & Scott.

#### MISCELLANEOUS.

Bolt cutter, 3" Acme, single head.  
Boring mill, 34" Colburn vertical.  
Broaching machine, No. 2 Lapointe.  
Gear cutter, No. 3 B. & S. auto.  
Grinder, No. 3 B. & S. plain.  
Grinder, 12x48" Cincinnati, cyl.  
Grinder, 8"x32" Landis plain.  
Grinder, P. & W. vertical surface.  
Grinder, 10"x26" Ott universal.  
Hammer, 800 lb. W.W., board drop.  
Hammer, steam, 800 lb. Massillon.  
Miller, No. 33 Kempson prod. type  
Miller, No. 2 Milwaukee universal.  
Planer, 32"x32"x8' New Haven.  
Planer, 36"x36"x8' Betts.

Planer, 36"x36"x12' Woodward  
Powell.  
Planer, 38"x38"x8' Niles.  
Punch pr., No. 4 & 4 $\frac{1}{2}$  Niagara, o. b. i.  
Saw, Smith & Post cold saw.  
Screw machine, No. 9 B. & S. semi-  
auto, hand.  
Screw mach., No. 2 $\frac{1}{2}$  Garvin, hd. mach.  
Screw mach., No. 3 Foster, pl. hd.  
Screw mach., No. 4 Foster, pl. hd.  
Screw mach., 2"x2 $\frac{1}{2}$ " Cleveland auto.  
Shaper, 18" Niles, traveling head.  
Turret lathe, 2"x24" J. & L.  
Turret lathe, No. 2 Pratt & W.  
Turret lathe, 24" Conradson.

### FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

#### LATHES.

42" Pond car wheel, motor drive.  
36"x16" Sidney, d. b. g., q. c., new.  
24"x14" Sidney, d. b. g., q. c., new.  
19"x 8" Sidney, d. b. g., q. c., new.

17"x 8" Sidney, d. b. g., q. c., new.  
15"x 6" Sidney, d. b. g., q. c., new.  
16"x10" Carroll, d. b. g., q. c., new.  
13"x 5' 6" Carroll, s. b. g., p. c., new.

#### SHAPERS AND PLANERS.

14", 16", 20", 24" Stepto shapers, new.  
7" Rhodes, precision, new shaper.  
16x16x42" Walter planer, 1 head.

24"x24"x8" Pease 1 head planer.  
36"x36"x10" Cincinnati, 3 hds., motor.  
60"x60"x16" Pond planer, 3 heads.

#### MILLERS.

No. 2 Garvin universal, new.  
No. 2 Putnam universal, used.  
No. 3 LeBlond universal, used.  
No. 3 Burke, hand, new.

No. 4 Brown & Sharpe, plain, used.  
No. 1 Dow plain, new.  
No. 23 Garvin vertical, used.  
No. 24 Oesterlein plain, used.

#### DRILLING

48" Mueller plain, speed box, used.  
36" Dreses plain, cone drive, used.  
32" Superior, s. h. b. g., p. f., new.  
28" Superior, s. h. b. g., p. f., new.

#### MACHINES.

21" Superior, b. g., p. f., new.  
20" Buffalo and Champion, b. g.  
16" Canedy-Otto plain, new.  
4-spindle Superior hi-speed, used.

#### MISCELLANEOUS.

Boring mill, 3" bar Binnse, hor.  
Boring mill, 42" Bullard, vertical.  
Gear cutter, 40"x4" Bement, spur.  
Grinder, No. 1 Fraser univ., new.  
Grinder, 10"x36" Norton plain, used.  
Hack saws, 6x6 & 9x9 Peerless, new.

Keyseaters, Nos. 2 & 4 Catlin, used.  
Pipe machines, 2", 4", 6" Ott, new.  
Pipe machine, 8" Loew, used.  
Punch & shear, No. 53 Beloit, new.  
Press, hyd., Watson & S., 30 tons.  
Shear, No. 46 Beloit, alligator, new.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.**

#### LATHES.

- 13" x 6' Lancaster, c. r., h. s., new.
- 14" x 6' Monarch, d.b.g., q.c.g.; used.
- 16" x 8' Walcott, q.c.g., d.b.g., new.
- 16" x 8' Bradford, h. s., cpd. r., with chuck, used.
- 20" x 8' Lodge & Shipley; used.
- 20" x 9' Williams turning lathes.
- 26" x 10' Walcott, q. c. g.; d. b. g; new.
- 26" x 8' Walcott plain turning.
- 26" x 12' Walcott, q.c.g., d.b.g., new.
- 26" x 12' Wickes, heavy duty, quick change gear, double bk. gear, with taper attachment, new.
- 26" x 12' Draper, triple geared.

#### TURRET LATHES.

- Foster No. 3, plain head, (7).
- Wood Tilted Turret, 14" cap., (2).
- Omar, 16x6 $\frac{1}{2}$ , b. g., p. f. with equipment, (3).
- Gisholt, 16" Type A., b. g., (2).
- Wysong & Miles, 24" b. g., p. f., air chuck, (2).
- 16" x 7' Fulton, b. g., p. f., (4).
- 14" x 4" S. & K. plain head.

#### DRILLING MACHINES.

- No. 1 Burke, bench, chucks, new.
- 2" Leland Gifford, high speed.
- 3 spindle Fox style A, 1" cap.
- 4 spindle Garvin; used.
- 4 spindle Allen, high speed cap. 29/32.
- 5 spindle Allen, high speed cap. 29/32.

#### PLANERS.

- 26" x 36" x 15' Patch, o. s., 1 hd. on cross rail, 1 head on side, used.

#### MILLING MACHINES.

- No. 2 American Lincoln, b. g., new.
- No. 1 U. S. hand, vise and arbor.
- No. 3 P. & W., Lincoln type, used.
- No. 1 B Fox hor., h. & p. f., new.
- 24" Osterlein, universal.
- Hecker No. 7H Lincoln; used.
- Hendey No. 4 Lincoln type, q. c. g.
- Foster thread miller.

#### PRESSES.

- Nos. 1, 2, 3, 4 Loshbough-Jordan, o. b. i., new.
- No. 2 Sidney, o. b. i. used.
- No. 1 Greenerd, arbor, used, (9).
- No. 2 Greenerd, arbor, used, (6).
- Nos. 2 & 3 Geier, arbor; new.
- Perfection, 30 ton, arbor; new.

#### SAWS.

- Nos. 1 & 2 Marvel, draw cut, new.
- No. 1 Racine, 6x6 high speed, new.
- Racine hi-speed, 3 sp., 8x8" used.
- Williamson, metal, used.

#### GRINDERS.

- Nos. 1, 2 & 3 Western, d. e., new.
- Nos. 1, 2 & 3 St. Louis, d. e., new.
- No. 20 Safety E. W. Co., elec. (4).
- No. 1 Grand Rapids universal cutter and tool; new.
- Wood No. 2 Univ. cutter & tool; used.

#### HAMMERS.

- 30 lb. Rochester helve, used.
- Foot hammer, Standish.
- 900 lb. Lane, dbl. fr., st. forging, used.
- No. 50 Star trip hammer, new.
- 1200 lb. Chambersburg double frame, steam forging, used.

#### MISCELLANEOUS.

- Bolt threader, Greenfield  $\frac{1}{2}$ " to 1 $\frac{1}{2}$ ".
- Bolt threader, Greenfield  $\frac{1}{2}$ " to 2".
- Compressor, 13x8x12 Curtis; used.
- Lathe chucks, all sizes to 16" diam.
- Motors, 5 & 7 $\frac{1}{2}$  h.p. G.E., 220 v., new.
- Motor, 10 h. p. G. E., 3 ph., 60 cy., 220 v., 1800 r. p. m., new.
- Pipe cutter, B. & K., 4" cap.
- Pipe mach., No. 76 Forbes, 3", used.
- Pipe machine, 3" Borden, hand.
- Riveters, Grant and Shuster; used.
- Shaper, 16" Whipp, sgl. gr.; new.
- Shaper, 16" Gould & Eberhardt; used.
- Spot-welder, Federal electric, capacity  $\frac{1}{2}$ "; used.
- Stake punch & riveter, No. 3 Hilles & Jones, 5" thr., wt. 16000 lbs., used.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### **Tranter Manufacturing Co.,**

Boring mill, No. 2 Cleveland horiz.  
Drill, 20" Barnes, with equipment.  
Drill, 24" Hamilton, with equip.  
Drill presses, Avey, (2).  
Grinder, No. 3 B. & S. univ., with  
equipment.  
Grinder, Blount wet emery, &c. s.  
Grinder, Hamilton wet tool.  
Grinder, New Yankee drill.  
Grinder, cutter, small.  
Hack saw, No. 4 Robertson, with  
equipment.

#### **105 Water St., Pittsburgh, Pa.**

Lathe, 16" Cincinnati, with equip.  
Lathe, 16" Hendey, with equip.  
Lathe, 18" Bradford, with equip.  
Lathe, engine, 18"x8".  
Lathe, speed, Wells, with equip.  
Miller, No. 2 B. & S., with equip.  
Miller, No. 3 B. & S. pl., with equip.  
Miller, No. 3 B. & S. vertical with  
equipment.  
Planer, 3"x8" Gray, with equipment.  
Radial drill, 4' Fosdick, with equip.  
Shaper, 16" Smith & Mills crank.

### FOR SALE BY

#### **B. C. Allen Machinery Co.,**

Arbor press, 30 tons.....	\$ 100.
Bolt cutter, 3" National.....	275.
Brakes, 8-10', power.....	
Brakes, 6' hand.....	125.
Drill press, new 20", b. g., p. f.	165.
Drill press, 20".....	65.
Drill press, 34" Barnes, sld. hd.	450.
Drill press, 2, 3 & 4 spindle.....	\$75 up
Grinder, Norton No. 1 univ.....	\$ 300.
Keyseater, Baker Bros.....	175.
Miller, No. 3½ Fox.....	250.
Miller, No. 9 Steptoe.....	250.
Miller, No. 25 Becker, b. g.....	475.
Miller, No. 3 Owen universal.....	1325.
Miller, No. 3 Becker vertical.....	850.
Planer, 24x24x5' Gray.....	650.
Punch press, No. 5½ Walsh grd.	1250.

#### **104 S. Clinton St., Chicago**

Punch press, No. 4 I.-J. grd.	\$1050.
Punch press, No. 19 Bliss.....	300.
Punch press, No. 40 Perkins.....	300.
Punch press, No. 4 solid back.....	550.
Punch press, foot.....	45.
Shaper, 15" Smith & Mills.....	475.
Shaper, 14" Juengst, crank.....	250.
Shaper, 16" Queen City, b. g.....	650.
Shaper, 20" American, b. g.....	800.
Square shear, 48" Bliss, power, 10 gauge.....	550.
Square shear, Niagara, power 12 gauge.....	450.
Square shear, 6' foot power.....	225.
Square shear, 36" foot.....	150.
Square shear, 30" foot.....	65.
Several car loads of bargains.	

### FOR SALE BY

#### **The O'Brien Machinery Co.,**

Bending rolls, 8', 8" and 6" diam.  
Bolt cutter, 4" Acme, single head.  
Bolt cutter, 1" Acme.  
Bolt cutter, 3" Acme single head.  
Boring mill, 32" Rogers, turret hd.  
Boring mill, 52" Bement vertical,  
with 2 heads, motor driven.  
Drill, 3½ spindle Baker Bros. heavy  
duty upright.  
Drill, Allen 8-spindle, high speed.  
Drill, Allen 6-spindle, high speed.  
Drills, Moline heavy duty hog  
drills (2).  
Hammer, 800 lbs. Bement-Miles,  
double frame steam.  
Hammer, 1200 lbs. Bement-Miles,  
double frame steam.  
Hammer, 2,000 lb. United Engine  
Co. board drop.  
Lathe, 8"x108" Fitchburg Lo-Swing.  
Lathe, 16"x17' Pratt & Whitney.  
Lathe, 18"x8" Lehman.  
Lathe, 20"x9" Lehman.  
Lathe, 20"x14" Powell.  
Lathe, 24"x10" Gang.  
Lathe, 36"x23" Hughes & Phillips.

#### **119 N. Third St., Philadelphia, Pa.**

Lathe, 48"x16' Sellers.  
Lathe, 85"x18' Bement.  
Miller, No. 3 Hendey plain  
Miller, No. 3½ Fox.  
Miller, No. 2-A Brown & Sharpe  
universal, geared head, vertical  
attachment and rotary attachment.  
Miller, No. 3 Becker vertical.  
Pipe machine, 4" Oster.  
Pipe machine, 2" Cox, heavy duty.  
Pipe machine, 2" Oster.  
Pipe machine, 6" Oster.  
Planer, 9"x50"x18" Betts.  
Presses, several Waterbury Farrell  
double acting, weight 2,000 lbs.  
Presses, Toledo No. 53 straight  
sided power, 34" stroke, (7).  
Press, No. 2 Toledo.  
Press, No. 3½ Toledo.  
Shaper, 16" Hollingworth, back grd.  
Shaper, 18" Hollingworth.  
Shapers, 2-12" & 2-15" Springf'd.  
Shapers, 12", 20" and 24" Juengst.  
Slotted, 12" stroke Bement.  
Turret lathes, No. 3 Warner &  
Swasey, geared friction head, (4).

## SECOND-HAND MACHINERY

### FOR SALE BY

**Niles-Bement-Pond Company.** . . . . . **111 Broadway, New York**  
**Located at our various factories and stores.**

#### LATHES.

18" x 8' LeBlond, quick change.	32" x 12' Pond, c. r.
22" x 8' Niles, c. r.	36" x 20' Pond, 220 v., d. c. motor dr.
24" x 10' Whitcomb, q. c.	42" x 20' Niles, c. r.
26" x 10' Pond, q. c., 220 v., d. c. motor.	48" x 30' Niles, c. r.
26" x 26' Niles, c. r.	50" x 17' F. B. Miles.
28" x 12' Pond, c. r.	54" x 25' American, t.g., 220 v., d.c. mtr.
28" x 18' Niles, c. r.	56" Niles pulley lathe.

#### TURRET

No. 6 A P. & J. auto., 220 v., mtr. d. c.	28" size J. Gisholt, 3½" spindle.
1" x 10" P. & W., turret lathe.	24" size I Gisholt, 220 v., mo. dr., d. c.
2" x 24" Jones & Lamson, cone head.	28" Milwaukee rigid, 4½" spindle.
2" x 28" Pratt & Whitney turret lathe.	32" Conradson turret.
2½" x 26" Pratt & Whitney, turn table.	34" size K Gisholt.

#### PLANERS.

30" x 30" x 6' Pond, 2 heads.	38" x 38" x 16' Niles, 3 heads.
30" x 30" x 12' Pond, 2 heads, 220 v., d. c., reversing motor drive.	42" x 42" x 14' Pond, 3 heads.
30" x 30" x 10' Pond, 2 heads.	60" x 60" x 14' Niles, 4 heads.
36" x 36" x 12' Gray, 2 heads.	60" x 60" x 20' Niles, 3 heads.
38" x 38" x 10' Niles, 2 heads.	60" x 60" x 24' Niles, 4 heads.
38" x 38" x 12' Niles, 4 heads.	72" x 72" x 12' Bement, 4 heads.
36" x 36" x 16' Pond heavy, 2 heads, 220 v., d. c., reversing motor drive.	72" x 72" x 20' Ridgway, 4 heads, 220 v., reversing, motor d. c.

#### MILLERS AND GEAR CUTTERS.

No. 5 B. & S. plain cone type.	No. 6 60" x 12" B. & S. gear cutter.
No. 5 B. & S. vertical, cone type.	15" Gleason bevel gear generator.
No. 3 36" x 8" B. & S. gear cutter.	6" x 48" P. & W. thread miller o. s.
No. 4 36" x 9" B. & S. gear cutter.	6" x 80" P. & W. thread miller o. s.

#### DRILLING MACHINES.

40" Aurora, tap, attach.	5" Ridgway, 220 v., d. c. motor.
3" Grant radial drill and boring mch.	6" Niles full univ., 220 v., d. c., m. d.
3" Dreses plain radial.	6" Niles semi-universal, old style.
4" Bickford plain radial.	6" Pond radial, 220 v., d. c. motor.
4" Niles full universal, old style, 220 v., motor d. c.	No. 13 P. & W. multiple 12 spindles.

#### GRINDERS.

2½" Drill grinder.	8" x 30" Fraser universal.
No. 8 Higley saw grinder.	10" x 72" Norton plain.

#### BORING MACHINES.

No. 1 Bement horiz., 2½" spdl., 5'tbl.	No. 4 Bement horiz., 4½" spdl., 10'tbl.
No. 2 Bement horiz., 3½" spdl., 6'tbl.	6" Bement bor. & t. mill.
No. 2½ Niles horiz., 4" spdl., 6'tbl.	10" Niles b. & t. mill, 220 v., d. c. mtr.
No. 3 Bement horiz., 4" spdl., 9'tbl.	5" spindle Niles floor borer.
No. 3 Bement horiz., 4½" spdl., 9'tbl.	6" spdl. Bement floor boring & drill.

#### MISCELLANEOUS.

Air compressor, type 10, Ingersoll-Rand, steam driven, capacity 535'.	Graduating machine, LeBlond.
Air compressor, Ingersoll-R. duplex, mtr. dr. 35 h. p. d. c. mtr., cap. 215'.	Hammer, 750 lbs., sgl. frame, Sellers.
Air compressor, Gardner class D, duplex, steam, capacity 837'.	Hot blast apparatus, Sturtevant, 120" housed steam fan engine dr., 10 sec. corrugated base heater 8' 6" x 8' 6" x 6' high, 440' per section.
Blower, No. 10 Sturtevant.	Keyseater, No. 1 Baker.
Blower, No. 70 Buffalo.	Motor, 100 h. p. West., mill type, 220 v., 2 p. 60 c. s. c.
Crane, 3 ton, Niles, 14' 2" span.	Profiler, No. 3 Keller, automatic.
Crane, 20 ton, 48' span Sellers, 220 volt, motor direct current.	Saw, 8" rounds, Higley.
Engine, 125 h. p., Phila. cross comp.	Screw shaver, No. 2 P. & W.
Corliss air compressor.	Separator, American No. 1, oil.
Engine, 150 h. p. Phila. Corliss.	Slotter, 6" Bement.
Engine, 200 h. p. Corliss, twin.	

## SECOND-HAND MACHINERY

### FOR SALE BY

**E. B. Stickley Mchly. Co.**

**693-701 E. Congress St., Detroit, Mich.**

Gear generator, Bilgram, 16".  
Gear generator, Gleason, 18".  
Gear hoppers, No. 2 Schuchardt & Schutte, cap. 36" dia. (3).  
Gear machines, Fellows, 36", for spurs. (2).  
Gear machine, No. 2-B Newark, 24", for spurs and bevels.  
Grinder, No. 4 Gardner double end, ring wheel.  
Grinder, No. 2 Landis internal.

Milling mchne, No. 3 Cincinnati vert.  
Milling machine, Ingersoll, slab type,  
42x42x12", motor drive.  
Squaring sh., No. 500 3/16-E Toledo,  
blades 97" long, 3/16" cap., 15" gap.  
Turret lathe, Steinle 24" single pulley drive.  
Turret lathes, No. 24 G. G. Prentice,  
4-spindle semi-automatics (2).  
Turret lathes, single and double  
spindle, Jones & Lamson, (4).

### FOR SALE BY

**Tubor, Velick & Co.,**

**629-631 W. Lake St., Chicago, Ill.**

Drill, 24" Ryerson, p. f., b. g.  
Drill, 25" Barnes, p. f., b. g.  
Drills, 2-3-4-5-6 spindle Allen, h. s., b. b., (9).  
Drill, 12-sp. mult. P. & W. h. s., 24" capacity.  
Grinder, 36x10 Saxon, surface.  
Lathes, 14" to 24" swing, beds up to 18", q. c. and plain, all makes.  
Lathes, 37x60 Fitchburg Lo-Swing, (10).  
Millers, Wisconsin, hand, (25).  
Millers, U. S., hand, (15).  
We also have on hand steel foundry trucks, paper balers, motors, tinnery rolls, shafting, belting, hangers; grinders, bench, floor and tool post; pulleys, electric drills.

Miller, Van Norman heavy duty hand.  
Millers, Fox No. 3½, p. f., (50).  
Miller, Kempsmith No. 1 pl. p. f. b. g.  
Millers, Becker No. 25, p. f., b. g., new, (3).  
Miller, Becker 7H, Lincoln type  
Punch presses, No. 60½ rack and pinion, (4).  
Screw mchne, Warner & S. No. 4.  
Screw machines, Smurr & Kamen No. 4, (10).  
Screw machine, Garvin No. 1, hand.  
Screw machine, Garvin No. 1, hand.

### FOR SALE BY

**McCoy-Brandt Machinery Company**

**Office and Warehouse, 210-218 Penn Ave., Pittsburgh, Pa.**

#### BENDING ROLLS.

16' Wickes, cap. 1" plate, m. d.  
12' H. & J. cap. 3" plate.  
8' Niles, cap. 3" plate.

10' Bertsch, cap. 14 ga.  
8', cap. 3/16" plate.

#### GEARED HEAD HENDEY LATHES.

New 14"x6' arr. for m. d., with draw-in attach., one with relieving attach., (4).  
Slightly used 14"x6' arranged for m. d., excellent condition, (7).  
All the above have pans and lubricating equipment, also silent chains.

#### MILLING MACHINES.

No. O B. & S., plain.  
No. 1½ American plain, new.  
No. 2 Kempsmith plain.

No. 3 Cincinnati plain.  
No. 3 Brown & Sharpe universal, index head.

#### BROWN & SHARPE AUTOMATICS.

No. 2-G, with motor 220 v., d. c.  
No. 2-G, belt drive.  
No. 2, belted (7).

No. 2, belted, with chasing attachment, (5).  
No. OG, with motor 220 v., d. c.

#### MISCELLANEOUS.

Boring mill, 42" Putnam, 2 heads.  
Hammers, steam drop, 1000 & 1500 lb.  
Lathe, 12"x6" Hendey, cone.  
Lathe, 18"x9" American, q. c. g.  
Lathe, 20"x7" American, q. c. g.  
Lathe, 24"x26" American, geared hd., m. d., motor 220 v., d. c.

Lathe, 28"x12" Putnam, q. c. g.  
Planer, 42"x42"x8" Gray, 4 heads.  
Planer, 30"x30"x10" Sellers, 1 head.  
Shaper, 32" Cincinnati, b. g. crank.  
Shears, alligator, cap. 1", 1½", 2", & 3".  
Shears, guillotine, cap. 1" and 2".

Large stock of both new and used Punches, Shears, Hammers, etc.

Immediate shipments—Partial List.

## SECOND-HAND MACHINERY

### FOR SALE BY

Federal Machinery Sales Company,

8 N. Jefferson St., Chicago, Ill. 218 Sycamore St., Milwaukee, Wis.

Used Tools—Excellent Bargains

Boring and turning mill, 100" Niles-Bement-Pond vertical.

Cold saw, No. 11½ Higley 3".

Drills, new No. 12 Natco multi. spindle, each having ten spindles, (2).

Gauge grinder, Springfield universal, with motor.

Gear generator, 14" Lees-Bradner.

Grinder, 12"x24" Modern plain.

Saw, No. 16 Racine.

Tapping machine, No. 1 Garvin vertical automatic.

### FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

#### LATHES.

43"x17' 4½" Bement-Miles.

42"x25' 6" Putnam.

42"x16' Niles.

37½"x14' Johnson d. b. g., q. c. f.

32"x12' Pittsburgh, heavy duty, q.c.g.

26"x16' 6" American, q. c. g.

27"x12' Ballard.

26"x11' Wickes, q. c. g.

28"x10' Niles, q. c. g.,

25½"x26' Johnson.

25"x14' Hendey, q.c.g., taper attachment, oil pan, (2).

21½"x8' LeBlond (2).

20"x8' 6" Walcott, d. b. g., q. c. g., (2).

20"x8' Whitcomb Blaisdell, q. c. g.

19"x12' Flather.

18"x10' Draper, patent head.

18"x7' Chard, d. b. g., semi q. c. g.

18"x6' to 8' lathes. (6).

17"x10' Lodge & Shipley, q. c. g.

16" Lathes, (10).

14" Lathes, (18).

And many others.

#### TURRET LATHES.

No. 22½ Garvin Monitor.

No. 3 Bardons & Oliver, back grd.

No. 5 Bardons & Oliver.

14"x4' Warner & Swasey.

#### DRILL PRESSES.

40" Lodge & Davis, b.g., sliding hd.

30" Barnes, geared head.

20" Hoosier, new, (3).

20" Champion, new, (6).

12" Allen, bench.

Plain drills, all sizes.

Drill presses, assorted sizes.

#### MILLING MACHINES.

Whitney hand miller.

No. 27 Industrial Works, Lincoln type, table, 7x27".

Gooley & Edlund, 7½x46" table.

#### PLANERS AND SHAPERS.

21" American, back gear shaper.

16" Gould & Eberhardt shaper.

39" Pedrick & Ayer, open side.

14" Warren shaper.

#### MISCELLANEOUS.

Keyseater, 24" stroke, Baker Bros.

Keyseaters, 18" stroke Morton, (2).

Keyseater, Mitts & Merrill No. 2.

Punch presses, all sizes, (105).

Punch & shear, Industrial Wks. d.e., capacity 3" in 8", squaring 4"x6".

Slotter, 30" Niles.

Squaring shear, 4" Niagara grd.

Tooth rounding machine, Schuchardt & Schutte.

Bolt machine, 4" National.  
Boring mill, 100" Sellers, vert., dbl. hd.  
Boring mill, car wheel, 60" Newton.  
Boring, drilling and milling machine, 17½" Bement Niles horizontal.  
Grinder, 13½"x5' Landis universal.  
Grinder, disc, No. 16 Besly.  
Grinder, disc, No. 1 Besly.  
Hammers, 60 lb. Bellefonte upright, (2).

Large assortment of General Machinery. Send for Complete List.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### J. Blaser Manufacturing Co.,

Adding mch., 9-column Burroughs, practically new, \$250.  
Air compressors, 10x10 Sullivan, practically new.  
Air tank, 200 gallon.  
Chain hoists, Wright 2-ton h. s., new.  
Cranes, Whiting overhead, hand pwr.  
Crucibles, Nos. 60 and 70, new.  
Crucible furnaces, Fisher, fuel oil.  
Drill presses, 20" Royersford, b. g.  
Lathe, 17" LeBlond, rapid pwr., q. c.  
Lathe, 21" LeBlond, rapid pwr., q. c.  
Lathe, 20"x8" Monarch, q. c.

#### Springfield, Ill

Motors, 20-30-40 h. p. Bullock Gen.  
Elec., practically new.  
Oil storage tank, 8,000 gallon.  
Snap flasks, Arcade 10x16x4Cx3D.  
Snap flasks, 12x16 Taper.  
Sprue cutters, Champion, Riddle and Tessamer.  
Squeezers, Tabor pwr. molding mch.  
Stenciling mch., Ideal style 2, practically new; cost \$105.; price, \$75.  
Time recorder, Cincinnati, complete with racks, etc., \$175.  
Transformer for elec. brass furnace.

### FOR SALE BY

#### Brownell Machinery Co.,

Boring mill, No. 1 Lucas horiz.  
Boring mill, No. 32 Lucas horizontal, direct motor drive.  
Boring mill, No. 1 Cleveland hor.  
Drill, 26" H. & W. sens. radial.  
Drill, 3" American Tool Wks. radial.  
Drills, 28" Cincinnati upright.  
Drills, 28" Hoefer, sliding head.  
Gear cutter, No. 24 Whiton auto.  
Gear cutter, Whiton, hand feed.  
Gear generator, 11" Gleason, bevel.  
Gear shaper, No. 612 Fellows.  
Grinder, 6x30 Morse plain.  
Grinder, 10x50 Norton plain.  
Grinder, No. 1 Bryant chucking.  
Lathes, 14"x6" Flather, q. c. g.  
Lathes, 16"x8" Flather, q. c. g.

#### 11-13 Eddy St., Providence, R. I.

Lathes, 20"x8" Whitcomb-Blaidsell.  
Lathes, 20"x10" Roulsted.  
Miller, No. 1 Garvin universal.  
Miller, No. 1-B Kearney & Trecker.  
Miller, No. 24 Brown & Sharpe pl.  
Miller, No. 2 Van Norman duplex.  
Planer, 17"x20"x8" Whitcomb-B.  
Planer, 22"x22"x8" Whitcomb-B.  
Planer, 24"x24"x8" Whitcomb-B.  
Planer, 30"x30"x8" Whitcomb-B.  
Rack cutter, Gould & E. automatic.  
Shaper, 14" Flather plain.  
Shaper, 15" Kelly plain.  
Shaper, 18" Flather plain.  
Swaging machines, No. 2 Standard  
Machinery.  
Swaging machines, No. 4 B.

### FOR SALE BY

#### A. M. Stoehr Machinery Co.,

Bench lathes, Hardinge and Elgin.  
Bolt cutters, 4" & 1" capacity.  
Compressors, steam & belt drive.  
Drill press, 12" L. & G. 2 spindle.  
Drill press, 3-spindle Avey h. s.  
Drill presses, 4, 5 and 6-spdl. Allen  
high speed.  
Drill press, 20" Champion, b. g., p. f.  
Drill press, 20" Barnes, 4-spindle,  
power feed, back geared.  
Drill press, 34" Barnes.  
Drill press, 36" Cincinnati.  
Gear hobber, No. 3 Barber-Colman.  
Grinder, No. 10 Besly, disk.  
Keyseater, Davis, 4" capacity.  
Lathe, 9"x40" Barnes screw cutting.  
Lathe, 12"x8" Seneca Falls.

#### 844 North Wells St., Chicago, Ill.

Lathe, 14"x8" Sebastian.  
Lathe, 14x6" Bradford.  
Lathe, 18"x8" Advance, also others.  
Milling machines: Wisconsin hand;  
No. 3 Fox, Nos. 1 & 2 Cincinnati.  
Oil extractor, 28" Troy, bot. disc.  
Pipe mch., 6" Jarecki, motor drive.  
Presses, No. 3 Walsh, Amer. Can,  
Hoeft; No. 18-19-20-21 & 21½ Bliss;  
No. 4 Walsh and Consolidated;  
No. 4 American Can, No. 4 Rice,  
No. 3½ A. Bliss d. a. toggle, 300 ton  
hydraulic embossing press.  
Screw mch., No. 4 B. & S., like new.  
Screw machines, Acme, Foster and  
W. & S.  
Shaper, 16" Ohio heavy duty.

All the above Chicago stock immediate delivery. This is only part  
of our stock. Mail us your list.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Reliance Machinery Sales Co.,  
Brighton Road At Pennsylvania Ave., Pittsburgh, Pa.**

Compressor, 10"x10" American, 175 cubic feet, belted.  
 Drill, 36" Snyder, sliding head.  
 Drills, 34" Dreses radial, g. b. s. p. d.  
 Drills, 34" Prentice plain radial, (2).  
 Hammers, 100 lb. Cady, belt lift, (2).  
 Lathes, 20"x8" L. & S. q. c. g., (3).  
 Lathe, 62"x40" Pittsburgh, t. a. m. d.  
 Lathes, Libby 22", type B., (4).  
 Lathes, Libby 26", type C., (2).  
 Miller, No. 2 Cincinnati plain.  
 Miller, No. 3 Becker-Brainard plain.  
 Miller, No. 3 Cincinnati plain.

Miller, 30"x30"x8' Ingersoll, s. & v. heads.  
 Pipe machine, Jarecki, cap. 4" to 3".  
 Pipe machine, Jarecki, cap. 1" to 4".  
 Pipe machine, Cox, cap. 3" to 6".  
 Pipe machine, Merrill, cap. 1" to 6".  
 Planer, crank, 16"x14"x14", 1 head.  
 Press, 86 Niagara, grd., cam drawing.  
 Shaper, 16" Gould & E., b. g. crank.  
 Shaper, 20" Gould & E., b. g. crank.  
 Shaper, 24" Cincinnati, b. g. crank.  
 Shaper, 24" Stockbridge, b. g. crank.

### FOR SALE BY

**A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago  
ENGINE LATHES.**

11"x5' South Bend.  
 14"x6' Smurr & Kamen.  
 15"x7' Chard, d. b. g., p. c.  
 18"x9' Bell, d. b. g., p. c.  
 20"x8' Hamilton, d. b. g., s. q. c.  
 20"x8' Lodge & Shipley, grd. hd.

### MILLING MACHINES.

No. 9 Rockford, plain.  
 No. 25 Becker, horizontal.  
 No. 1 Newton slab.

20"x8' Reed, s. b. g., p. c.  
 20"x8' Reed, motor driven.  
 22"x16' Davis, d. b. g., q. c.  
 32"x10' Pond, s. b. g., p. c.  
 34"x10' Putnam, s. p. g., p. c.  
 38"x14' Fifield, s. b. g., p. c.

Model AB Becker, vert., motor dr.  
 Type "A" Briggs (2).  
 No. 6 Brainard, Lincoln.

### DRILL PRESSES.

26" Mechanics, friction.  
 26" Barnes, sliding head.  
 28" Barnes, sliding head.  
 36" Aurora, sliding head.

2 spindle Guarantee, h. s., b. b.  
 4 spindle Reed sensitive, 4" cap.  
 24" No. 24 Foote-Burt heavy duty.  
 2 spindle 24" Barnes, all grd. gang.

### PUNCH PRESSES.

No. 1 Consolidated, grd., (2).  
 No. 9 American Can.  
 No. 8 & No. 11 Bliss auto. button presses.

No. 16 Bliss, horn.  
 19" throat geared punch.  
 New Swaine o. b. i. presses Nos. 27,  
 29, 31, 33, 35 and 37.

### TURRET LATHES AND SCREW MACHINES.

No. 3 Foster, plain head.  
 20"x5' Bridgeport, (2).  
 20"x8' Fay & Scott universal.  
 22"x5' Reed.  
 21" and 24" Gishols.  
 3x36" Jones & Lamson.  
 18"x10" Milholand.  
 14" Biggs (2).  
 No. 1 Garvin, hand, (4).  
 No. 1 B. & S. auto 1" (2).

No. 3 Stecher, hand, (4).  
 16"x5' Dreses Fox.  
 18"x8' American Fox.  
 18"x8' Springfield Fox.  
 7/16" Cleveland, ratchet feed.  
 6" Cleveland, semi-auto.  
 4" Cleveland, friction.  
 4" Cleveland, jigger.  
 6" Hartford, (2).  
 6" Cleveland, jigger.

### BOLT CUTTERS AND PIPE MACHINES.

14" Acme, double head.  
 24" Acme single head, (2).  
 4" Acme single head.

4" Saunders (2).  
 8" Eaton, Cole & Burnham.

### MISCELLANEOUS.

Blower, No. 7 Sturtevant, high press.  
 Boring mch., 24" bar, Bissell horiz.  
 Gang slitter, takes 21" sheets.  
 Gang slitter, takes 29" sheet.  
 Gas engine, 35 h. p. Columbus.  
 Gas engine, 55 h. p. Bruce-McBeth.  
 Grinders, No. 2 Woods tool & cutter  
 Grinder, No. 2 Oesterlein tool & cut.  
 Grinder, 10x30 Landis plain.

Grinder, Springfield, 2-wheel wet.  
 Grinder, Leland & F., wet.  
 Planer, 30"x30"x10' Pond, 1 head.  
 Profiler, 2 spindle Putnam.  
 Riveter, 4" Shuster.  
 Saw, No. 54 Nutter-Barnes.  
 Screw slotter, Garvin hor. 3/16 to 1".  
 Tapper, No. 2 Garvin, auto.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Noble Machine Company,** - - - - - **Fort Wayne, Ind.**

#### KEYSEATER.

One good second-hand No. 9 Haker Keyseater, belt driven. We offer this as it is or rebuilt. Write us for price.

### FOR SALE BY

**A. A. McLaughlin & Co.,** - - - - - **24 West 2nd St., Cincinnati, Ohio**

Drill, Bickford 8-spindle multiple, capacity 7' 6"	\$1,500.
Drill, Pratt & Whitney universal multiple	1,750.
Sheets rolls, Niles, 56 <sup>3</sup> /4 between housings, 7 rolls 6" diameter	1,200.

### FOR SALE BY

**The Enterprise Machinery Co.,**

Bolt cutter, 3 st. Acme.....	\$2500.	Miller, No. 2 Cincinnati, b. g....	\$ 350.
Boring mill, 36" Niles, 2 hds. ....	1750.	Pipe machine, 2" Jarecki.....	250.
Gear cutter, B. & S. automatic spur, fine condition.....	350.	Planer, 22"x2", 1 head.....	295.
Grinder, Bath No. 2 cylindrical univ., all angle, new, \$300 worth tools, 2 univ. mttrs.	800.	Press, horn, bench, new, 150 lb. ....	120.
Lathe, 12x4 Monitor.....	175.	Press, punch, bench 130 lb. 11" wheel, cap. 4" in 1/16", new.....	90.
Lathe, speed, 14x5 slide r., hvy.	125.	Punch, sh. & rod c. 4" x 4" Doty.....	250.
Lathe, 18x10 Fitchb., c. r., ck..	295.	Punch, L. & A., 2" thru 2".....	2300.
Lathe, 28x14 Rahn Carpenter heavy duty, fine condition... .	1100.	Roll, 11" for 4".....	2500.
Miller, 25 Becker, 95%	450.	Shaper, 16" Baker & Chard....	425.
		Shaper, 16" Springfield.....	390.
		Shears, circle, power.....	75.
		Thread roller to 12".....	200.
		500 other tools. Write us your needs.	

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,**

**1001-3-5 N. Sixth St.,**

**St. Louis, Mo.**

#### LATHES.

18"x 9' Chard.  
20"x 8' Lodge & Shipley, geared hd.  
21"x 9' Lodge & Davis.  
24"x 12' Schumacher & Boye.  
24"x 12' Lodge & Shipley.  
25"x 16' Niles.

26"x 10' Bridgesford, q. c.  
26"x 10' Reed.  
32"x 20' Draper, triple geared.  
40"x 16' Fitchburg.  
54"x 16' Putnam.  
72"x 30' triple geared.

#### SHAPERS.

24" Gould & Eberhardt.  
20" Wetherell travelling head.

#### PLANERS.

32"x 32"x 10' Sellers.

#### MILLERS.

No. 12 Kempsmith plain.  
No. 8 Becker plain.

#### DRILLING MACHINES.

6' arm Prentice.  
4' arm American.

#### MISCELLANEOUS.

Boring mill, 36" turret head.  
Boring and drilling machine, horiz., No. 2 Pawling & H.  
Cold saw, 28" O. & C.  
Gear shaper, 36" Fellows.  
Grinder, 8"x 30" Modern plain.  
Hammer 400 lb. board drop.  
Hammer, 1100 lb. Morgan, steam.

Marking machine, Mathews.  
Screw machine, 3" Garvin, hand.  
Screw machine, 1" Foster hand.  
Screw machine, 1 1/4" Foster hand.  
Slotter, 6" Sellers.  
Turret, 16" Bardons & Oliver, univ.  
Wheel press, hydraulic, 84", 300-ton.

# Redface Pulleys



Sheaves and Fly Wheels



**PERMANENT:** They are permanent, as they are not affected by age, heat, cold or moisture.

**RELIABLE:** They do not loosen up under vibration or intermittent loading.

**RUN TRUE:** They run true, steady the line shaft, and have a very small load due to windage.

**REDFACE PULLEYS** are especially adapted to use on motors, fans, pumps and special machinery.

*Catalog mailed promptly upon request*

## Pyott Foundry Co.

Cast Iron Pulleys, Sheaves and Fly Wheels

328 N. Sangamon St.,

Chicago, Ill.

We Are  
In the Market

*for*

Good Up-To-Date  
Used Machinery

What have you to offer?

We buy one machine,  
or entire plants.

Vonnegut Machinery Co.

19 W. South St.,

Indianapolis, Ind.

# The New Year Brings New Prices

Now Is The Time To  
**BUY!**

An addition to our regular stock list

## Chester Bertolette Company

Offices: 1004-5 Commercial Tribune Bldg., CINCINNATI, OHIO

### BORING MILLS

72" Betts Heavy Duty, 2 swivel heads, actual swing 80",	\$ 5,000.00.
42" Bullard Heavy Duty, 1 swivel head, 1 turret head, arranged for motor drive.	
36" Baush & Hams Vertical Boring Mill,	\$ 950.00.

### ENGINE LATHES

60"x16" Betts,.....	\$ 800.00.	32"x16" Pittsburgh,.....	\$ 1,300.00.
50"x27" New Haven,.....	1,500.00.	28"x10" New Haven,.....	850.00.
42"x18" Niles,.....	1,450.00.	14"x 6' Reed,.....	275.00.
20"x12" Lodge & Shipley,.....	600.00.		

### GRINDERS

No. 1 Landis,.....	\$ 750.00.	No. 1 Landis Sur. Grinder	\$ 200.00.
No. 2 Landis,.....	800.00.	Cincinnati Tool Grinder	
No. 3 Landis,.....	900.00.	Equal to New,.....	175.00.

### BOLT CUTTERS

Acme Double Head, 1½" capacity, complete with dies,.....	\$ 425.00.
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### RADIAL DRILLS

2-New Morris Latest Type, 4' Radial Drills, gear box dr., tap. att.,.....	\$ 1,950.00.
4' American Single Pulley Gear Box Drive tapping attachment,.....	1,250.00.
6' Niles-Bement-Pond, late type, arranged for mtr. dr., without mstr.,.....	1,850.00.

### PUNCHES

No. 15 Williams & White, 30" throat, architectural jaw, arranged motor drive, complete,.....	\$ 1,350.00.
No. 6 Beatty Single End, 48" throat, 1"x1" capacity, new,.....	1,800.00.
No. 6 Beatty Single End, 36" throat, 1"x1" capacity, new,.....	1,500.00.
No. 11 Whiting, 24" throat, 1" thru 1",.....	1,100.00.

### SHAPERS

16" Steptoe,.....	\$ 400.00.	24" Gould & Eberhart,.....	\$ 1,050.00.
16" Smith & Mills,.....	575.00.	28" Queen City,.....	975.00.

### PLANERS

48"x48"x16' Pond, 3 hds.\$3,250.00.	
60"x60"x16' Pond Plainfield, late type	24"x24"x8' Gray, nearly new.

### WHEEL PRESSES

150 Ton Shaffer Wheelpress, Hydraulic	\$ 750.00.
250 Ton Hamilton Machine Company Hydraulic	1,500.00.
Several New Wheelpresses, Hydraulic, reasonably priced.	

### SQUARING SHEARS

36"x18 gauge foot power,.....	\$ 100.00.
48"x14 gauge Niagara, geared power, late type,.....	495.00.
48"x12 gauge Bliss, geared heavy duty, late type,.....	

### HAMMERS

No. 5 Williams & White Belt Drop Hammer, equal to new,.....	\$ 450.00.
20,000 lb. Steam Forging Hammer.	

*Write for our regular Stock List. It will be of interest to you.*

## LET'S GET TOGETHER

## *"New York's Greatest Clearing House—J. J. McCabe Lathe and Machinery Corporation"*

**It's time to buy—** for when the "other fellow" MUST sell then the buyer best serves himself and his future requirements—  
**—to buy right—** when prices are at their LOWEST, then you may safely buy—particularly  
**—to buy AT McCABE'S**

the highest grade New and Used Tools, because with the Low prices you are buying reliable Tools that will give you absolute satisfaction—

### BOARING MILLS, HORIZ.

4½" and 4" Bar Niles, Knee Type.  
4½" Bar Belmont Miles, Knee Type.  
3" Bar Bettis, Knee Type.

### RADIAL DRILLS

5' Arm, American, Cone Drive.  
4' Arm, Hickford, Speed box.  
4' Arm, Dresses, Cone Drive.

### TURRET LATHES

2x24" J. & L. (2) Flat Turret, sliding hd., chucking and bar equipment.  
3x36" J. & L. Flat Tur., slide hd., bar equip.  
20" Potter and Johnson Chucking and Turning machines (2) with 2" Hollow Spindle.  
26" Pond "Rigid Type" rapid traverse to turret, "hollow spindle,  
21" Gisholt, swing in gap 32" like new,  
Hartford Auto. Screw Machine.

### GEAR CUTTERS

18" Gleason Bevel Gear Planer, full equip.  
30" G. & E. Spur and Bevel Gear Cutter.

### PLANERS

48" x 60" x 15" Pond M. T. Co., 2 heads.  
48" x 18" x 15" Sellers, 3 heads.

### GRINDERS

Universal Landis 16" Swing, 60" centers.  
Universal Landis, 16", swing, 36" centers.  
Universal Iroquois, 12x32".  
Bridgeport Roll Grit, Table, 60x12", 36"  
centers, wheel 20x6".

### MILLING MACHINES, VERTICAL

No. 5 Brown & S. auto. feed to table 52".  
No. 2 Cincinnati.

### MILLING MACHINES, PLAIN

No. 3 Cincinnati (3) working surface of table 48x14", overhanging arm.  
No. 32 Brainerd, working surface of table 48" x 14" overhanging arm, etc.  
No. 7 Becker Brainerd Mrs. Type.  
Keweenaw Milling Machine "Newton" horiz.  
and vertical spindles, table 60x12".

### BENDING ROLLS

14" 2" between housings, drop end center support for lower rolls.  
"Hilles & Jones," modern style, top roll 11" diam., two lower rolls 8" (one roll grooved), friction clutch pulley.

### AIR RIVETER

24" Stroke (2) Niles-B.-P. Co.'s (Bement Miles works) with auto, cross, side and circular fits, to table, full equip., complete

### HYDRAULIC RIVETING EQUIPMENT

8" Gap Beam Miles Bull Riveter, with piston and ram for accumulator overhead crane, hoist, etc., capacity for driving up to 14" rivets.

### LATHES

34x60" Lo-Swing Fitchburg.  
36" x 14' Bridgeford, grd. hd., g. c. mtr, dr.  
36" x 16' Putnam.  
36" x 20' Putnam.

50" x 13' American, Triple grid., qk. ch. (3).  
50" x 30" Olsonson, triple geared.  
50" x 36" Olsonson, triple geared.  
54" x 21" Pond M. T. Co., triple geared.

### DOUBLE SPINDLE LATHE

Slightly used 26-49" swing, 12½" bed McCabe, at price equivalent to 26" lathe, but giving you the additional capacity of 48" triple geared lathe as well.  
One 26-60" Swing, 25" bed, 20" Centers.

### SLOTTERS

24" Stroke (2) Niles-B.-P. Co.'s (Bement Miles works) with auto, cross, side and circular fits, to table, full equip., complete

48<sup>1</sup>/<sub>2</sub>"x48<sup>1</sup>/<sub>2</sub>"x15<sup>1</sup>/<sub>2</sub>" Pond M. T. Co., 2 heads.  
48<sup>1</sup>/<sub>2</sub>"x48<sup>1</sup>/<sub>2</sub>"x15<sup>1</sup>/<sub>2</sub>" Sellers, 3 heads.

## AIR RIVETER

# IT'S TIME TO BUY

### OTHER TOOLS

Crankshaft and Forge Cold Saw, equipped with one 30<sup>1</sup>/<sub>2</sub>" and three 24<sup>1</sup>/<sub>2</sub>" inserted tooth saw blades, capacity for cutting up to 9" round, "Espin-Lucas," head with saw hat travel of 24". Shaft Straightening Mch., "Medart," 6-roll type, 2-top, 3-bottom, for straightening round bars, 1<sup>1</sup>/<sub>2</sub>" to 4<sup>1</sup>/<sub>2</sub>", any length, Cutting-off and Centering Mch., "Bement-Miles," for cutting off both ends at the same time of axles & shafts up to 9" diameter, Travelling Head Shaper, 12" stroke, Fitchburg Special Column Shaper.

Bolt Header, Burdick, 1<sup>1</sup>/<sub>2</sub>" capacity, Palleys (20), 30x32 7/16", capacity, Vertical Steam Engine, Horiz. Engine, Gas Engine 16 H. P., Fairbanks Morse, Vert. Hydraulic Press, cyl. 14<sup>1</sup>/<sub>2</sub>"dia., 12' str., 20-Ton Gantry Crane, 42' span, length of bridge 54', rail base to floor 17<sup>1</sup>/<sub>2</sub>', 20-Ton Air Crane, with 5-ton hoist, travel across 24', travel back about 30', complete with rail.

### PUNCHES AND SHEARS

42" Gap Hilles & Jones, No. 4 single end, cap, for punching 1<sup>1</sup>/<sub>2</sub>", thru 1<sup>1</sup>/<sub>2</sub>", arranged for motor drive, including motor.

36" Cap, Long & Allstatter, double end, cap, for punching 1<sup>1</sup>/<sub>2</sub>" thru 1<sup>1</sup>/<sub>2</sub>", belt driven. Portable Punch, Peas.

### 36" Splitting Shear.

### HORIZONTAL PUNCH

60" Gap Hilles & J. No. 6, cap, for punching 3<sup>1</sup>/<sub>2</sub>" hole thru 1<sup>1</sup>/<sub>2</sub>" plate, weight 68,180 lbs., arranged for motor drive but not including motor, absolutely like new.

### NEW TOOLS, IMMEDIATE SHIPMENT

### NEW LATHE

36 machines in stock, all sizes, 16 to 60" sw., new McCabe, qk. ch., all steel grs. in qk. ch. and apron, 3-step cone, dbl. back grs. 16"x 6" bed, 2<sup>1</sup>/<sub>2</sub>" between centers. 16"x 8" bed, 2<sup>1</sup>/<sub>2</sub>" between centers. 16"x 10" bed, 4<sup>1</sup>/<sub>2</sub>" between centers. 18"x 8" bed, 4<sup>1</sup>/<sub>2</sub>" between centers. 18"x 10" bed, 6" between centers. 18"x 12" bed, 6<sup>1</sup>/<sub>2</sub>" between centers. 20"x 8" bed, 4<sup>1</sup>/<sub>2</sub>" between centers. 21"x 10" bed, 6<sup>1</sup>/<sub>2</sub>" between centers. 21"x 12" bed, 6<sup>1</sup>/<sub>2</sub>" between centers. 21"x 14" bed, 10<sup>1</sup>/<sub>2</sub>" between centers. 29"x 16" bed, 10<sup>1</sup>/<sub>2</sub>" between centers. 32"x 14" bed, 7" between centers. 32"x 16" bed, 9" between centers.

32" x 20" bed, 13' between centers.

36" x 18" bed, 11' between centers. 36"-40"x13" bed, "American Tool Works," tri. gro., quick change gear box, at a big reduction from regular new selling price.

### NEW SHAPERS

Four in stock, 12 to 16" stroke.

### NEW RADIALS

Ten in stock.  
4-1/2" Arms, speed box, single pulley drive.  
5-1/2" Arms, speed box, single pulley drive.  
1-3" Arm, speed-sensitive, tapping att.

### NEW BENDING ROLLS

Two sets in stock, 10<sup>1</sup>/<sub>2</sub>" bet. hours, "LATEST" IMPROVED TYPE, "HEAVY PATTERN."

10<sup>1</sup>/<sub>2</sub>" between housings, drop end, rolls set in pyramid form, center support, top roll 16<sup>1</sup>/<sub>2</sub>" diam, two lower rolls 8" diam, (1 grooved), cap, 4<sup>1</sup>/<sub>2</sub>" plate, weight about 26000 lbs., arr. for either belt or motor dr.

### PUNCHES AND SHEARS

New McCabe Standard Heavy Pattern, 50" throat, weight 46000 lbs., arranged for motor drive, not including motor.

# J. J. McCabe Lathe & Machinery Corporation, 149 Broadway, New York

*"The RELIABILITY of McCabe's Used Machinery Is Known the World Over"*

# Real Investments

## Machine Tools

## Immediate Delivery

### LATHES

- 2 slightly used 48" x 28" Lodge & S. selective triple grd. hd., motor dr.
- 1 slightly used 48" x 16" L. & S. selective t.g.h., driven by 25 h.p. motor.
- 1 slightly used 42" x 26" American selective triple grd. hd., motor dr.
- 4 slightly used 26" x 14" L. & S. selective triple grd. head, for motor dr.
- 1 slightly used 29" x 10" Greaves-Klusaan, 3-step cone, belt drive.
- 3 new 14" x 6" Monarch, 3-step cone, quick change, double back geared.
- 5 new 13" x 5" Worcester, 3-step cone, belt drive.
- 4 new 14" x 6" Flather, 3-step cone, belt drive.

### GRINDERS

- 2-12x72 Norton plain.
- 1-10x72 Norton plain.
- 1-No. 70 Heald internal.
- 2-No. 2 Brown & Sharpe universal.
- 1-No. 2 Morse universal.
- 3-No. 75 Heald.
- 1-No. 60 Heald.
- 1-12" No. 22 Heald rotary surface, with magnetic chuck.
- 1-14" P. & W. vert. surface, with quadruple magnetic revolving ck.
- 1-No. 6 Rivett internal grinder.
- 1-10x36 Norton plain.

### PLANERS AND SHAPERS

- 1-72x72x20' Pond, 2 rail heads.
- 1-36" Fellows gear shaper.
- 1-24" Smith & Mills shaper.
- 1-24" Ohio shaper.
- 1-20" Kelly shaper.
- 1-14" Smith & Mills shaper.

### BORING MILLS

- 3-Used 62" King vertical, 2 swivel heads, for motor drive.
- 3-Used 54" Bullard rapid production, 2 swivel hds., for motor dr.
- 3-Used 52" King vertical, 2 swivel heads on cross rail, for motor dr.
- 1-Used 52" Bullard vert., 2 swivel hds. on cross rail, for motor drive.
- 1-New 44" Bullard maxi-mill; 2 swivel heads on cross rail, for motor drive.
- 1-Used 40" King vertical, 2 swivel heads on cross rail, for motor dr.
- 3-New 36" Bullard New Era type, 1 turret head on cross rail, 1 side head, for motor drive.

### BORING MILLS—Continued

- 1-Used 36" Gisholt vert., 1 turret hd. on cross rail, 3-step cone, belt dr.
- 1-Used No. 33 Lucas horiz., single pulley drive, latest type, 44" bar.
- 1-Used No. 31 Lucas horizontal, single pulley drive.
- 1-Used No. 9 Giddings & Lewis horiz., latest type, sgl. pulley dr.
- All of the above in excellent condition and are real bargains.

### MILLING MACHINES

- 2-Model C1 Becker vertical.
- 2-No. 2 Cincinnati vert., 3-st. cone.
- 1-No. 2 Cincinnati vertical, single pulley drive, latest type.
- 1-No. 3 Kempsmith universal, 3-step cone, belt drive.
- 1-No. 2 Cincinnati pl., sgl. pulley dr.
- 1-No. 3S Cin'ti univ., for motor dr.
- 1-No. 3H LeBlond universal.
- 1-No. 2N Potter & Johnston reversible table milling machine.
- 1-60" Newton vertical continuous.
- 2-No. 5C Becker vertical.
- 1-No. 1½ Brown & Sharpe universal.
- 1-No. 2 Cincinnati universal.

### AUTOMATICS AND TURRET LATHES

- 2-1½" Gridley, 4 spindle.
- 3-No. 52 National Acme.
- 3-No. 56 National Acme.
- 1-2" Model A Cleveland Auto.
- 1-3" Cleveland Automatic.
- 1-4" Cleveland Automatic.
- 4-3" Steinle 6½" spindle.
- 4-No. 3A Warner & Swasey.
- 2-No. 4 Warner & Swasey.
- 1-No. 8 Bardons & Oliver.
- 1-No. 4 Bardons & Oliver.

### MISCELLANEOUS

- 2-12" Wm. Sellers Slotters, 5-step cone, belt drive.
- 1-D8 Colburn heavy duty Drill.
- 1-No. 216 Baker Drill.
- 1-No. 315 Baker Drill.
- 1-4" Hamilton Radial Drill, mtr. dr.
- 2-No. 4 Williams & W. Bulldozers.
- 1-New 1½" double spindle National Bolt Cutter.
- 1-300 ton Southwork vertical hydraulic Press.
- 1-No. 59 Toledo Press.
- 1-No. 59½ Toledo Press.

The Empire Machinery Exchange Co., Inc.  
915 Citizens Bldg., CLEVELAND, OHIO

# Priced To Sell Under Present Conditions

Over 400 Machines In Stock At Our Warehouse

## BORING MILLS

100" Betts, 3 heads, like new.	48" Colburn, 2 heads, modern.
76" Betts heavy, modern.	36" Bullard Vertical Turret.
60" Niles-Bement-Pond, hvy., single pulley drive.	8-24" Bullard turret type.
60" Bickford, standard, 2 heads, low price.	24" Horizontal Universal, belt driven.
	4" Espen-Lucas Horiz., floor type.
	3" Betts, Horizontal, knee type.

## DRILLS

8' Niles Plain Radial.	5' Niles-Bement-Pond, motor driven.
6' Baush, Plain Radial, like new.	4' Gang, gear box drive.
6' Bickford, Semi-Universal Radial.	

## LATHES

60"x20' Fifield, D. C. Motor Drive.	28"x18' Johnson.
52"x22' New Haven triple geared, pulley drive.	20"x8"x10' American.
60"x17' New Haven Pulley.	20"x8' Lodge & Shipley.
36"x14' Putnam triple geared.	14"x6' Mulliner tool room.
36"x12' Pond triple geared.	14"x6' Monarch.
30"x12' Johnson.	12"x5' P. & W.
	10"x4' Seneca Falls.

## Milling Machines

9—No. 5C Becker Verticals, new, price right.	No. 2 Kempsmith Universal.
No. 3 LeBlond, plain, high duty.	50"x8' Ingersoll Slab.
No. 5 Becker-Brainard Plain.	No. 25 Becker Plain.

## PLANERS

84"x84"x13' Sellers, 3 heads, belt driven.	42"x42"x12' Pond Machine Tool Co., 2 heads, belt driven.
48"x48"x14' Powell, 4 heads, reversible motor drive, complete with electrical equipment.	36"x36"x12' Niles-Bement-Pond, 3 heads.
48"x48"x16' Bement-Miles, 4 heads, belt driven.	30"x30"x10' Flather, 2 heads, belt driven.
	30"x30"x6' Gray, 3 head, parallel dr.

## SHAPERS

2-16" Newark, box table and vise.	4-15" Hendey, box table and vise.
4-15" Smith & Mills, box table and vise.	3-48" Morton, extra heavy, draw-cut.

## Miscellaneous

Whiting Punch and Shear, 1" cap.	8" New Haven slotted.
10' Bement Boiler Plate Rolls.	Single and double action presses.
18" Betts heavy type slotted.	

# Graves Machinery Exchange

Warehouse and R. R. Siding:  
Johnston Ave. & Monitor St.,  
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We HAVE Machine Tools that YOU NEED

# David A. Wright

568 Washington Blvd., - Chicago, Ill.

New, Used and GUARANTEED Rebuilt  
Machinery for Immediate Delivery

## LATHES

No. 2 NILES AXLE, 6' CENTER.  
No. 3 NILES AXLE, (NEW).  
3½" x 60" Lo-Swing.  
6" x 60" Lo-Swing.  
8" x 60" Lo-Swing.  
6" x 84" Lo-Swing.  
8" x 84" Lo-Swing.  
6" x 100" LO-SWING.  
14x6 Reed Prentice, h. d.  
16x7 Oliver Tool Room, q. c. g.  
16x8 Gisholt turret.  
17x8 LeBlond, q. c. g., h. d.  
18" Libby 6-hole turret.  
18x 8 Oliver tool room.  
20x 8 Cisco, q. c. g.  
20x 8 Hamilton, q. c. g.  
20x11 Cisco, q. c. g.  
24x12 CISCO, q. c. g.  
24x12 Gisholt turret.  
24x 6' Steinle turret, 6½" hole.  
30x12 Putnam, g. h., arr. for motor.  
30x12 6" Oliver, all-gearred head.  
42" Niles car wheel.  
52" Niles car wheel.  
50x20' FIFIELD, TRIPLE GRD.

## SHAPERS

14" Steptoe, b. g. crank.  
16" STEPTOE, B. G.  
16" Queen City b. g.  
20" Walcott b. g.  
20" Queen City b. g.  
20" STEPTOE, B. G.  
24" Lodge & Davis b. g.  
24" QUEEN CITY, B. G.

## DRILLING MACHINES

22" Superior, b. g., p. f., tapp. attach.  
20" Foote-Burt, h. d.  
24" Barnes, 2-spindle camel-back.  
34" Barnes, b. g., p. f.  
36" Mechanics, b. g., p. f.  
2½" Fosdick, radial.  
6 spindle Barnes gang.  
6 spindle Allen, b. b., h. s.  
10 spindle Natco multi., ½" cap.  
12 spindle P. & W. multi., ½" cap.  
27 spindle Baush multi., ½" cap.  
D-4 COLBURN 24", h. d.

## GRINDERS

No. 14 GARDNER DISC.  
No. 60 HEALD CYLINDER.  
No. 14 Besly disc, ring wheels.  
No. 1 W. & M. Surface.  
Sterling cutter and reamer.  
6x20 FITCHBURG AUTOMATIC  
PLAIN.  
10x30 Landis plain.  
12x30 Fitchburg automatic plain.  
12x36 FITCHBURG AUTOMATIC  
PLAIN.

## SCREW MACHINES

No. 0 B. & S. SLOTTING AT-  
TACHMENT.  
No. 00 B. & S. SLOTTING AT-  
TACHMENT.  
No. 2 B. & S. lot equipment.  
1" Chicago automatics.  
No. 2 Bardone & Oliver, 1" cap.  
No. 4 WARNER & SWASEY, P. F.

## MILLERS

3" Lees-Bradner internal.  
3" Foster internal.  
MODEL A. B. BECKER, CIR-  
CULAR TABLE.  
No. 1½ American plain b. g., p. f.  
No. 2 Pratt & Wright.  
No. 2 M. U. Garvin universal.

## PUNCH PRESSES

No. 3 Morton, o. b. i.  
No. 3 Adriance, o. b. i.  
No. 3 R. & K., o. b. i.  
No. 17 Bliss.  
No. 18 Bliss, o. b. i.  
No. 19 Bliss, o. b. i.  
No. 4 McDonald, o. b. i.  
No. 5½ WALSH, GEARED.  
No. 65-N Bliss, double acting.  
No. 68-C 3 Bliss, double acting.  
No. 68 W. Bliss, double acting.  
No. 59½ Toledo, s. s.

## MISCELLANEOUS

No. 2 Moore Screw Press.  
No. 2 Davis Keyseater.  
24" Bullard Boring Mill.  
36" Bullard Boring Mill.  
52" Baush Boring Mill.  
30" ROGERS & HEMPHIL  
BORING MILL.

*Send us your inquiries*

# SIMMONS

## Boring Mills

- 24" Bullard vertical, with side head.
- 34" Bertram vertical, turret head.
- 36" Bullard New Era type vertical, with cutting lubricant system.
- 42" Bullard New Era type vertical, 4-jaw chuck, complete.
- 54" Bullard production mill.
- 12' Betts vertical, 20 h. p. motor.
- 12' Niles pattern boring & turning.

## Planers

- 24"x24"x 8' Cincinnati, 1 head.
- 30"x30"x18' Cincinnati, 2 heads.
- 30"x30"x10' W-Powell, 2 heads.
- 36"x36"x20' W-Powell, 4 heads.
- 42"x42"x12' Simmons openside, 2 heads, NEW, (2).
- 48"x48"x20' Ridgeway, 3 heads.
- 48"x48"x20' N-B-Pond, 4 heads, NEW.
- 48"x48"x28' Cincinnati, 2 hds., NEW.
- 60"x60"x20' W-Powell, 4 heads.
- 84"x84"x25' Sellers, 4 heads, 40 h. p. motor.

## Lathes

- 84"x26' Putnam hvy. duty, motor dr.
- 60"x29'-66' N.-B.-Pond high duty, motor drive, NEW, (6).
- 57"x23' Putnam, cone d., taper att.
- 48"x29'-56' N.-B.-Pond heavy duty, motor driven, NEW, (6).
- 42"x18' Bement-Miles heavy.
- 36"x34' and 44' Bridgeford, heavy duty, all geared head, (7).
- 36"x18' Putnam high duty, NEW.
- 36"x14' Putnam h. duty, motor d., (2).
- 28"x18' Pond, screw cutting, all geared head, complete.
- 27"x24' LeBlond h. pw., A-I, (15).
- 27"x18' LeBlond high duty, all grd. head, complete, (12).
- 24"x18' LeBlond heavy duty.
- 24"x10' Flather, d. b. g., complete.
- 22"x10' Davenport, q. c. g., complete.
- 21"x11' LeBlond heavy duty.
- 18"x 8' Lodge-Shipley, 4' 6" centers.
- 14"x 6' Monarch, belt drive, (2).
- 9" Porter Cable mfg. lathes, (4).

## Radial Drills

- 7' Warren semi-universal.
- 6' Reed-Prentice plain, tapping attachment, (3).
- 6' Pond pl., belt drive, complete, (2).
- 5' Prentice pl., tapping att. (3).
- 5' Bickford pl., arranged motor dr.
- 4' Hammond high speed, NEW.
- 4' Bickford plain, 4 h. p. motor.
- 36" Dreses plain, tapping att.

## Millers

- No. 2 LeBlond plain all gear feeds.
- No. 2 Brown-Sharpe vertical.
- No. 3 Hendey plain, std. equip.
- No. 3 Cincinnati h. power plain.
- No. 5 Brown-Sharpe vertical.
- Gooley & Edlund, type A. & B.
- Pratt-Whitney heavy duty slab.
- No. 12 universal American NEW.
- No. 12 Plain American NEW.
- No. 36 Chicago hand, with c. s., (2).
- 6x14 P. & W. 6" thread miller.
- P. & W. 4" spine millers, (5).
- Becker large heavy duty hand (15).

## Grinders

- 14"x36" Norton plain NEW.
- No. 1 Norton univ. tool-cutter, (2).
- B. & S. planer type surface.
- No. 5 Brown-Sharpe universal.
- No. 4 Besly spiral double disc.
- No. 3 Garvin univ. cutter-surface.

## Miscellaneous

- 15" Hendey friction shaper.
- 16" Cincinnati heavy duty shaper.
- 20" Gould-Eberhardt bk.grd shaper.
- 24" Hendey friction driven shaper.
- 32" Cincinnati hvy. duty shapers (8).
- No. 2-A Warner-Swasey turret lathe.
- No. 12 Pratt & W. Turret Lathe.
- 10" Bement slotting machine.
- 30-ton Orton-Steinbrenner 8-wheel standard gage locomotive crane, 52' boom, complete.

**Simmons Machine Co., Inc.**

Albany, N. Y.

801 Singer Bldg., N. Y., 86-88 Exchange St., Buffalo, N. Y.

# IN STOCK For Immediate Delivery

## BORING MILLS

No. 0 Giddings & Lewis horizontal.  
60" Bullard, 2 plain heads.

## DRILLING MACHINES

12" Leland-Gifford, h. s., ball bearing, single spindle.  
16" Cleveland, h. s., b. b. drill.  
6' Gang radial drill.  
6' Prentice radial drill.

## GEAR CUTTERS

No. 3 Farwell gear hobber.  
8" Hercules.

## GRINDERS

No. 12 Brown & Sharpe universal.	No. 12 Modern.
6"x32" Norton.	No. 8 Besly disc grinder.
8"x40" Morse.	No. 10 Besly disc grinder.
14"x50" Norton.	Gisholt tool grinder.

## LATHES

12"x 8" Pratt & Whitney toolroom lathe.  
16"x 6' Bradford, compound rest.  
16"x 8' Hamilton style "A", taper and relieving attachment.  
18"x10' Bradford, compound rest, double back gear.  
32"x18' Bradford, compound rest.  
Porter Cable Mfg. lathe.

## MILLING MACHINES

No. 0 Rockford plain.	No. 3 Becker vertical.
No. 5 Hendey, Lincoln type.	No. 13 Brown & Sharpe.
No. 6 Whitney hand.	No. 5 Garvin plain.
Taylor & Fenn vertical.	12" P. & W. automatic.
No. 3-B Milwaukee plain.	Type "A" Briggs miller.
No. 5-B Brown & Sharpe.	No. 32 Kempsmith.

## SCREW MACHINES

No. 0 Foster, plain head, automatic chuck and wire feed.  
No. 1 Foster, plain head, automatic chuck and wire feed.  
No. 2 Foster, plain head, automatic chuck and wire feed.  
No. 1 Pratt & Whitney, automatic chuck and wire feed.

## TURRET LATHES

21" Gisholt.  
24" Gisholt.  
2"x24" Jones & Lamson.  
Potter & Johnston.  
24" Cleveland, automatic.  
14" Warner & Swasey.

## PRESSES

No. 23 Toledo, double action.  
No. 6 Eames arbor press.

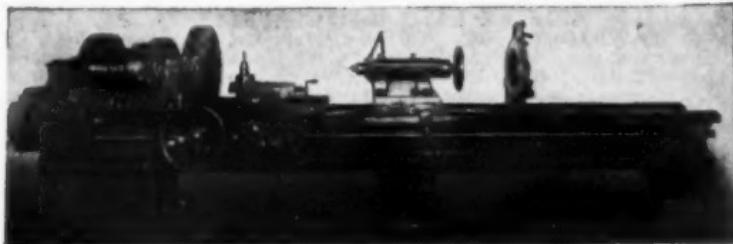
# Stocker-Rumely-Wachs Company

117-121 N. Jefferson Street

CHICAGO, ILL.

# 26" Bridgeford Engine Lathes

Replaned and Rebuilt—80-90% New



## 2-26" x 14' Bridgeford Engine Lathes

D. B. G., Q. C., S. C.  
Compound and steady rests.  
3-step cone for 5½" belt.  
Bed heavily ribbed every 2".  
2½" hollow spindle Tailstock  
bearing on V's 20".  
8" between centers.  
C-C of carriage V's 19½".  
¾" "T" slots on carriage.  
C-C of tailstock V's 12½".

Screw 2" dia. x 2" pitch.  
Front bearing 7½" l. x 4¼" dia.  
(Bronze, ring oiling).  
Dia. TS spindle 4".  
Rear bearing 5¼" l. x 3¼".  
Swing over carriage 19".  
Front gear 3" face.  
Swing over compound rest 12".  
Double gear 1¾" face.

**Price, Each, \$1450.00**

1-26"x16' Bridgeford Double Back Geared, Quick Change Engine  
Lathe. Same as above, with 10" centers.

**Price, \$1600.00**

1-26"x18' Bridgeford Double Back Geared, Quick Change Engine  
Lathe. Same as above, with 10" centers.

**Price, \$1750.00**

*We will pay your expenses to inspect  
and purchase one of these Lathes.*

**J. L. LUCAS & SON, Inc.**

No. 3 Fox St.,

BRIDGEPORT, CONN.

# For Sale—Machine Shop Equipment of the Horsburg Forge Company

## Lathes

- 1-18"x 8' SCHUMACHER & BOYE, 3-step cone, double back geared head, quick change gear, compound rest, two chucks fitted.  
1-27"x22' BRIDGEFORD Hvy. Duty Mfg., 2 carriages with pl. rests, semi-change fd., driven by 25 h. p. G. E. 230 v., 400-1200 r. p. m., d. c. motor.  
1-30"x22' BRIDGEFORD Co's Heavy Duty Manufacturing Lathe, with plain rest, semi-change feed, driven by a 25 h. p. 400 to 1200 r. p. m. motor.  
1-32"x32' BRIDGEFORD Heavy Pattern six-speed head Engine Lathe, quick change gear, compound rest, driven by a 27½ h. p. Westinghouse, 230 volt, 550 to 1100 r. p. m. adjustable speed motor, with apron control.  
1-36"x44' BRIDGEFORD Hvy. Pattern Grd. Hd., q. c. g., c. r. driven by 25 h. p. Westhouse 230 v., 400-1200 r. p. m. motor, apron control.  
1-42"x18' AMERICAN Tool Works, Geared Hd. Lathe, raised in the sand to swing 54" qk. ch. gr., comp. r., driven by a 20 h. p. General Electric 230 volt, 400 to 800 r. p. m., mounted on floor and belted to sgl. pulley drive.  
1-46"x24' HOUSTON & GAMBLE Hvy. Pattern, q. c. g., c. r., driven by 25 h. p. Reliance 230 v., 400-1200 r. p. m. motor, apron control; 7" raising bks.

## Shaper

- 1-26" GOULD & EBERHARDT with vise, table support, c.s. and wrenches.

## Drills

- 1-21" CINCINNATI BICKFORD stationary head bk.gr., pw.f., auto. stop.  
1-24" No. 25 Swing FOOTE-BURT High Duty Drill.  
1-6' arm WESTERN Mch. Tool Co's Heavy Pattern Plain Radial, tapping att., with 2 square tables, driven by a 15h.p. Western 230 v., 1150 r.p.m. motor.

## Slotter

- 1-48" NILES Geared Slotter, square table, 59" dia., cross travel 28", long. travel 48". All geared feeds driven by a 20 h. p. General Elec. 230 volt, 400 to 800 r. p. m. motor, with E. C. M. Control (push button type), motor mounted on floor and belted to driving pulley.

## Horizontal Boring Machine

- 1-28" No. 2 sp. ROCKFORD Hor. Boring, Milling & Drilling Mch., spindle travel 24", floor plate 60x72". Driven by a 5 h. p. Western Electric 230 volt, 500 to 1500 r. p. m. motor. Two boring bars.

## Turret Lathe

- 1-No. 3-A W. & S. Universal Turret Lathe with considerable equipment.

## Cold Saws

- 1-32" Blade NEWTON, cap. 94" round stock. Travel of carriage 20". Driven by 220 h. p. General Elec. 230 volt, 400 to 800 r. p. m. motor mounted on floor and belted direct to driving pulley. Two 32" Blades.  
1-48" NEWTON Crank Shaft Cold Saw & cutting-off mch., two tables, travel of carriage 30". Driven by a 250 h. p. Western Gen. Elec. Co. 230 v., 400 to 1200 r. p. m. motor. With two 42" and two 48" inserted tooth blades.

## Pipe Machine

- 1-9½" to 8" No. 9½ MERRILL Pipe Threading & Cutting-off Machine.

## Grinders

- 1-No. 20 Safety Emery Wheel Co's 220 volt, 700 r. p. m., motor driven floor grinder. Diameter of arbor 2". Capacity for taking 30x4 Wheels.  
1-9½x42 LANDIS Univ., Magnetic Chuck for grinding ball bearing rings.

Can furnish photographs and details of any of the machines described above.

Send for complete stock list of used Machine Tools

**The Hess-Schenck Company**

221 St. Clair Ave., N. E.

Cleveland, Ohio

**Have you seen  
our New List of**

**Standard Machine Tools**

**Hydraulic Tools**

**Plate Tools**

**Riveters**

**Rolls**

**etc.**

**?**

**If not, ask for one**

**It's interesting**

*We Rebuild the Tool—We buy Modern Tools*

**THE NOTCH & MERRYWEATHER MACHINERY CO.**

**CLEVELAND**

**DETROIT**

**CINCINNATI**

**PITTSBURGH**

# NEW MACHINE TOOLS—*IMMEDIATE DELIVERY*

## DRILLS

- 1—Taylor & Fenn, No. 1, Type D, Bench Drill.
- 1—Taylor & Fenn, No. 3, Type A, Drill Press, three spindle.
- 1—Weigel 21" Sliding Head Drill, belt driven.
- 1—Dauber-Kratsch 20" Upright Drill.
- 1—Dauber-Kratsch 3' High Speed Radial.

## LATHES

- 2—Hamilton 20"x10' Style B Lathe, 3 step, DBG. bk. gear.
- 2—Rockford 9"x12" Geared Head Manufacturing Lathes.
- 1—Rockford 16"x6' Cone Head High Power Manufacturing Lathe.
- 1—Rockford 16"x6' Tool Room Lathe.

## HAMMER

- 1—Beaudry No. 7, 200 lb. Champion Type, belt driven.

## SAW

- 1—Peerless 6"x6" Hack Saw.
- 1—Racine No. 1 Hack Saw.

## GRINDERS

- 1—Schmidt Internal Grinder.
- 1—Norton No. 2 Universal Tool and Cutter Grinder.
- 1—Gardner No. 4 Disc Grinder.
- 1—Gardner No. 14 Disc Grinder.
- 1—Ott 10"x32" Universal Grinder.
- 1—Taylor & Fenn Bore Grinder.
- 1—Sterling Universal Tool and Cutter Grinder.
- 1—Taylor & Fenn 20" Wet Tool Grinder.
- 2—Gardner No. 3 Polishing Lathes.
- 1—Fitchburg 4x20 Grinder.

## MILLING MACHINES

- 3—Taylor & Fenn Vertical Milling Machines.
- 1—Craftsman No. 3 Castellating.

## SHAPER

- 1—Ohio 14" plain, cone drive.

## FOOT PRESS

- 1—Taylor & Fenn.

## GEAR SHAPERS

- 2—No. 61 Fellows.

# THE MACHINE TOOL ENGINEERING COMPANY

Incorporated

Singer Building,

149 Broadway, New York

# Bertolette Machine Tool Co.

## ENGINE LATHES

60" x 20' Pond, face plate drive, practically new.  
48" x 36' Niles, raising blocks to swing 60".  
36" x 14' Niles, face plate drive, 104" centers.  
28" x 15' Schumacher & Boye, quick change, 9" centers.  
28" x 10' Bridgeford, quick change, NEW, (4).  
24" x 14' Lodge & Shipley, quick change, taper attachment.  
24" x 12' Lodge & Shipley, quick change, taper attachment.  
20" x 10' Lodge & Shipley, quick change, 72" centers.

## GEAR CUTTERS and KEYSEATERS

60" Gould & Eberhardt Gear Cutter, practically new.  
36" Brainard Gear Cutter, late type.  
No. 2 Baker Bros. Keyseater, capacity up to 2".

## BORING MILLS and SLOTTERS

42" Bullard Vertical, 2 swivel heads.  
36" Bullard Vertical, 2 swivel heads.  
9" Bement Slotter, rotary table 24" dia.  
6" Newton Slotter, rotary table 18" dia.

## DRILLING MACHINES

4½' Dreses Plain, back geared, cone drive, tapping attachment.  
4' Fosdick Plain, single pulley drive, tapping attachment.  
3½' Baush Plain, cone drive.  
28" Barnes, back geared, sliding head.  
24" Gould & Eberhardt, back geared, sliding head.  
22" Bickford, back geared, sliding head.

## GRINDERS and SHAPERS

84" Diamond Heavy Face Grinder, motor drive.  
12" x 36" Modern Plain Self-Contained, single pulley drive.  
16" NEW Cincinnati Barker Back Geared Crank Shaper.  
16" Hendey Geared Shaper.

## PIPE and BOLT MACHINES

6" Curtis & Curtis Hand, dies 2½" to 6".  
4" Curtis & Curtis Power, dies 1" to 4".  
1½" Putnam Bolt Cutter, quick-opening die head, dies ¾" to 1½".

Office: 357 West Side Av.,  
Machineshop and Warehouse 220-228 Orient Av.,  
Jersey City, N. J.

# OUR GUARANTY

## MONEY BACK IF NOT SATISFIED

### Drills—Radial

- 1—6' sp. Foote-B., rail No. 6 m.taper.
- 1—5' Universal Kadiel.
- 1—4' Universal Radial.
- 1—4' Lodge & Davis Plain.
- 2—25" Weigle Drills, s. h. b. g. p. f.
- 4—Hoefer Drills, 21", 24", 26", 28".

### Grinders

- 1—Wells Cutter and Tool Grinder.
- 1—No. JA Yankee Drill Grinder.
- 1—Used No. 2 Woods Cutter.
- 3—No. 60 Heald Cylinder.

### Shapers

- 1—Each 16, 18, 21, 24" Hollingsworth B. G. Crank (new).
- 1—22" Lodge & Davis, Triple Grd.

### Millers

- 10—No. 32 Kempsmith Lincoln Type.
- 1—No. 1 Kempsmith Univ., vert.att.
- 2—No. 1½ American Plain.
- 1—No. 14 American Universal.

### Presses and Punches

- 1—No. 2 Pratt & Whitney Trimming.
- 6—Willard Presses, 2, 3, 4, 5-A Inc.
- 1—Doyt Combined Punch & Shear, grd.; cap about  $\frac{1}{2}$ " x  $\frac{1}{2}$ ", with 7" ht.

### Gisholt Turret Lathes

- 19—24", with 2", 4" and  $\frac{1}{2}$ " h. s., chucking equip., qck. ret., rapid traverse.
- 1—No. 2 Smith, rd. collet, 1-1/16"; wire fd., auto. chuck ind. stops to turret.

### Hand Screw Machines

- 14—No. 2 Smith, rd. collet, 1-1/16"; wire fd., auto. chuck ind. stops to turret.

### Baush Multiple Spindle Drills

- 1—Baush Multiple, arranged for 24 spindles; now with 12 spindles; takes 60" bet. columns; drills in any circle 12-48" dia.; approximate weight 30,000 lbs.
- 1—No. 1 Baush High Speed Multiple Spindle, rectangular head 16x20": arranged for 16 spindles; now with ten  $\frac{1}{2}$ " spindles; No. 2 M. T.; cone drive.
- 1—Baush Multiple, arranged and equipped with 16 spindles, No. 1 M. T.

### Lathes

- 4—Ideal Precision Lathes, 7" swing, comp. slide, grinding attachment.
- 3—Ames Precision Lathes, 8" swing, compound slide.
- 2—12 & 14" x 6' Worcester Tool Room, taper attachment, pan and collet.
- 1—14" x 6' Flather Engine Lathe, screw cutting, s. b. g.
- 1—Used Blaisdell 22" x 10' b. g. Engine Lathe.
- 1—Each Sidney Heavy Duty Lathes, 15, 17, 19, 25 and 27" by 6, 8, 10, 12 and 14' beds, d. b. g., 3-step cone, q. c. g.
- 1—Each Sidney Medium Pattern Lathes, 14, 16, 18 and 20" by 6, 8 and 10' beds, d. b. g., 3-step cone, q. c. g.
- 1—25" x 8" Economy Heavy Duty Single Purpose Lathe, d. b. g., 3-step cone, c. r., hollow spindle, quick change feed.
- 1—12" x 6' Reed.
- 1—17" x 8' National, c. r., h. s.
- 1—17" x 8' Lodge & Davis.
- 1—30" x 12' Putnam.

### Planers

- 1—24" x 24" x 8' Powell.
- 1—26" x 24" x 8' Pond. 2 heads.
- 1—30" x 30" x 8' Poud.
- 1—32" x 32" x 10' Fitchburg.
- 1—36" x 36" x 14' planer, 3 heads.
- 1—40" x 40" x 10' New Haven, 1 head.

### Miscellaneous

- Carwheel borer and facer, 50" Sellers.
- Gear cutter, 26" Brown & S. No. 3.
- Hammer, 40 lb. Bradley, cush. h.
- Hammer, 250 lb. Little Giant, pwr.
- Punch, 5' multiple, Bertsch.
- Shear, square, 12' Bertsch, 14 ga.
- Shear, Quickwork rotary, 48" throat 1" capacity.

*Stock changing daily—Write us your requirements*

**WAYNE MACHINERY CO.** **FT. WAYNE,  
IND.**

Branches: — 18 W. Second St., Dayton, Ohio  
121 So. Third St., Louisville, Ky.

# Automatics

The following machines are  
in A-1 condition, some  
of them like new

*In Stock for Immediate Delivery*

1— $\frac{3}{4}$ " Gridley 4 spindle .....	\$750.
2—No. 52 National Acme 4 spindle $\frac{3}{4}$ " cap- acity, each .....	1000.
2—No. 54 National Acme 4 spindle $1\frac{1}{8}$ " cap- acity, each .....	1200.
2—No. 55 National Acme 4 spindle $1\frac{5}{8}$ " cap- acity, each .....	1500.
1—No. 74 National Acme 4 spindle $1\frac{1}{8}$ " cap- acity, each .....	1200.
1— $\frac{3}{8}$ " Cleveland Model A .....	500.
1— $1\frac{1}{4}$ " Cleveland Model A .....	850.
3— $2\frac{1}{2}$ " to $2\frac{1}{2}$ " Cleveland Model A, each .....	1600.
1— $2\frac{3}{4}$ " to $3\frac{3}{4}$ " Cleveland Model A, each .....	2250.
1— $1\frac{1}{2}$ " Cleveland Model B .....	550.
1— $5\frac{1}{8}$ " Cleveland Model B .....	550.
2— $7\frac{1}{8}$ " Cleveland Model B .....	550.

*If interested in any of the above machines  
wire us at our expense.*

**The Morton Machinery Co.**

139 North Third St., Philadelphia, Pa.

## Slightly Used Machines Fully Guaranteed

1—No. 1 Lucas Boring Mill.  
1—4 $\frac{1}{2}$ " Gisholt Boring Mill.  
1—30" Bullard Boring Mill.  
1—28" Barnes back grd. Drill.  
2—24" Barnes vertical drill presses.  
1—26" 6 spindle John Barnes Gang Drill.  
6—Sigourney Plain Bearing Sensitive Drills.  
6—Pilton Plain Bearing Sensitive Drills.  
2—No. 25 Foote-Burt Drills.  
2—No. 2-D Colburn Drills.  
1—22" 4 sp. Barnes Gang Drill.  
1—No. 17 Foote-Burt Drill 4 sp.  
1—Safety Emery Wheel Grinder, Planer Type.  
1—No. 12 Modern Grinder.  
2—No. 17 Bealy Disc Grinders.

1—No. 3 Brown & Sharpe Automatic Gear Cutter.  
1—6x32 Norton Grinder.  
1—3-sp. G. & E. Gear Rougher.  
1—36" Fellows Gear Shaper.  
1—9x14 Porter Cable Lathe.  
1—30x14 Boye & Emmes Engine Lathe.  
4—No. 3-A Warner & Swasey Turret Lathes.  
1—26x12 Greaves & Klusman Engine Lathe.  
3—3 $\frac{1}{2}$ " Gridley Automatics single spindle.  
1—24" Gridley Automatics four spindle.  
Cleveland Automatics as follows:— $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 2",  $2\frac{1}{2}$ ", 2 $\frac{1}{2}$ ", 3 $\frac{1}{2}$ ".  
No. 52 and 55 National Acme Automatics.

**M. J. Walsh Machinery Co.**  
141 Sycamore St., Milwaukee, Wis.

## Punches And Shears

One No. 6 Beatty, 48" throat, 1" thru 1 $\frac{1}{2}$ ".  
One No. J5 Williams-White, 30" throat,  $\frac{1}{8}$ " thru  $\frac{3}{4}$ " steel.  
One No. 11 Whiting, 42" throat, 2" thru 1 $\frac{1}{2}$ ".  
One No. 6 Long & Allstatter, double end, 5" throat.

### MISCELLANEOUS

One No. 2 Williams-White Bulldozer, 16" stroke.	
One 20" Cincinnati heavy duty Crank Shaper.	
One 24"x24"x6' Gray Planer.	
One 30" Bullard Vertical Boring Mill, price,	\$1300.
One 34" Flather Spur Gear Cutter, price,	750.
One 38"x18' Steptoe Engine Lathe, price,	1400.
One No. 4 Cincinnati heavy duty Plain Milling Machine, price,	1600.
One No. 3-H LeBlond heavy duty Universal Milling Machine, price,	2200.
One No. 79 Bliss Press, 8" stroke, 35 other power presses in stock.	

Complete line of machine tools, chain blocks, boilers, engines, pumps, heaters, hoisting machinery, air compressors, etc.

**Norton-Broadway Machinery Co.**  
238 Broadway, Cincinnati, Ohio

# PRE-WAR PRICES:

are offering our entire stock of used Machines at sacrifice prices. Do not ask us for a list but specify exactly what you want and we will quote you by return mail or wire, if necessary. The following are a few Machines picked at random from our stock:

## LATHES

9" to 12" Barnes, h. s., cp. r., new.  
10"x5' Summit, nearly new, (5).  
13-15-16 and 18 O. & S., h.s., c.r., new.  
18"x 8' Fitchburg, hol. spdl., cp. r.  
20"x10' Hamilton, double back gear.  
24"x12' Fitchburg.

## TURRET LATHES and

24" Steinle, 6 $\frac{1}{2}$ " hol. spdl., grd. hd.  
18" Tilted turret hand screw mchc.  
2x24 & 3x26 J. & L. dbl. equipment.  
18" S. & K. hand screw machine.

14" Niles, traveling head.  
14" Smith & Mills, crank.  
16" Rockford, crank.

24x24x 6' Hendey.  
24x24x 6' Pease.  
36x36x 10' Sellers, 2 heads.  
44x44x12' Pond, 4 heads.  
48x48x16' Bement-Miles, 2 heads.

No. 856 Toledo, 36" stroke, 15,000 lbs.  
Perkins, dbl. crank, 16x24 bolster.  
No. 23 Niagara, Stiles type, (2).

**DRILLS and RADIALS**  
Henry & Wright sgl. spdl., high spd.  
3 $\frac{1}{2}$ " Canedy-Otto plain, new.  
Sensitive 1, 2, 3, 4 and 6 spindle.

**MILLING MACHINES**  
No. 25 Becker plain, (3).  
Ames Lincoln type, 10"x40" table.  
No. 12 Brown & Sharpe.  
No. 3 Brainard, 30x7 table.

No. 78 W. & M. wet surface.  
6x18 Landis, plain.  
Madison, int., for cylinders in block.  
Gisholt, universal tool.

**MISCELLANEOUS**  
Band saws, metal, Klemm, (2).  
Boring mill, 12', 2 swivel heads.  
Brake, 8' Keene, for 18 gauge.  
Broaching mch., Lapointe No. 1.  
Cold saw, Higley No. 11 $\frac{1}{2}$ .  
Compressors, 9x8 and 12x10, new.  
Gear cutter, G. & E. 36".  
Gear cutter, Whiton 26"x $2\frac{1}{2}$ " face.

In order to avoid moving our stock to our new Wareroom, we

## SHAPERS

24"x12' Fay & Scott.  
25"x14 Schumacher & Boye.  
36"x28' Putnam, geared head.  
12"x5' Precision tool room, (5).  
8"x60" Fitchburg Lo-Swing.  
21" and 24" Gisholt, turret.

**SCREW MACHINES**  
No. 2 Warner & Swasey hol. hex.  
Nos. 52, 53 & 56 National Acme.  
21" and 24" Gisholt.  
No. 0 B. & S. Automatics, (2).

## PLANERS

34x34x16' Sellers, 4 heads.  
60x60x17' Betts, 2 heads.  
60x60x20' Sellers, 4 heads.  
66x66x20' New Haven, 2 heads.  
84x84x32' Putnam, 4 heads.

## PRESSES

No. 3 Robinson, 4300 lbs., o. b. i.  
No. 6-A Willard 3400 lbs. inclinable.  
No. 12 Robinson 1500 lbs. inc., (3).

## GRINDERS

No. 18 B. & S. plain.  
No. 2 H Brown & Sharpe plain.  
Briggs type "A" high duty, 24x8 table.  
No. 32 Kempsmith Lincoln type, (3).

**GRINDERS**  
Capital, internal, practically new.  
Landis 10x24 universal.  
Litter 10x20 universal.  
36" and 66" Yates plate.

Hammers, 40 lb. Bradley, helve, (2).  
Hammer, Toledo, 5,000 lb. fric. brd.  
Hammer, Canton 6,000 lb. b.g. drop.  
Motors, 1 to 50 h.p., 3 ph., 220 v., G.E.  
Oil groover, Garvin, nearly new.  
Pumps, Gould triplex, 6 $\frac{1}{2}$ x8" & 7x8".  
Shears, 5' & 8' for 10 gauge.  
Shear, 8' Robinson, for 18 gauge.

# Osborne & Sexton Machinery Co.

Columbus, Ohio

Dayton Office: 1118 Lindsey Building, Phone Main 1524

## FIRST-CLASS USED TOOLS

### VERTICAL BORING MILLS

- |                       |                                 |
|-----------------------|---------------------------------|
| 34" Bullard, 1 head.  | 61" Bullard Maxi-Mill.          |
| 36" Gisholt, 1 head.  | 66" Niles, 2 heads (2).         |
| 42" Bullard, 3 heads. | 84" Betts, heavy type, 2 heads. |

### HORIZONTAL BORING MILLS

- |                                |                              |
|--------------------------------|------------------------------|
| No. 2 Rockford motor driven.   | No. 0 Giddings & Lewis, (3). |
| No. 2 Barrett 5" spindle, (2). | Universal Machine Co., 3"    |
| No. 33 Lucas.                  | spindle, (2).                |

### DRILLING MACHINES

- |                                    |                                  |
|------------------------------------|----------------------------------|
| No. 25 Foote-Burt heavy duty.      | 3' Fosdick radial, sgl. pulley.  |
| 4-spdl. Foote-Burt, adj. heads.    | 5' American radial, sgl. pulley. |
| 14-spdl. Baush mult., No. 4 taper. | 6' Western radial, motor driven. |

### LATHES

- |   |
|---|
| 60"x34' Houston Stanwood Gamble g. h., q. c., motor driven. |
| 52"x18' American g. h., q. c., motor driven.                |
| 36"x44' Bridgeford, g. h., q. c., motor driven.             |
| 32"x32' Bridgeford, q. c., motor driven.                    |
| 30"x22' Bridgeford plain turning, motor driven.             |
| No. 3-A Warner & Swasey Turret Lathe.                       |

### GRINDERS

- 5 No. 60 Heald Grinders, long tables.

### PLANERS

- |                        |                                      |
|------------------------|--------------------------------------|
| Open side.             | Straight side.                       |
| 30"x30"x10' Cleveland. | 48"x48"x16' Pond, 4 hds. motor dr.   |
| 48"x48"x12' Cleveland. | 60"x60"x16' Pond, 4 hds. motor dr.   |
| 60"x60"x14' Cleveland. | 84"x84"x22' Pond, 2 rail hds., belt. |

R. M. WEBB MACHINERY CO., 405 Hippodrome Bldg.  
CLEVELAND, OHIO

## Second-Hand Machinery

### BORING MACHINES.

- Binse horizontal, 4" bar.  
Four 24" Bullard vertical turret lathes, 4-jaw chuck, latest pattern.  
Four 30" Bullard vertical boring mills, 3-jaw combination chuck.  
36" Bullard vert. turret lathe, Rapid production type, 3-jaw chuck.  
50" Baush vertical, two swivel heads.  
Four 72" Cincinnati, latest pattern, two swivel heads.

### DRILLING MACHINES.

- Four No. 117 Moline "Hole Hog" heavy, single spindle.  
No. 11 NATCO multi-driller, 12" round head, 8 spindles.  
No. 310 Baker Bros. high speed heavy duty, with compound table.  
36" Wm. E. Gang plain radial.

### GEAR HOBBERS.

- 18" No. 2 Adams-Farwell. 18" Gould & Eberhardt.

### GRINDERS.

- No. 70 Heald internal. No. 10 Brown & Sharpe plain,  
No. 17 Besly disc, NEW. with water tank and pump.

### PLANERS.

- |                                 |                                |
|---------------------------------|--------------------------------|
| 24"x24"x 6' Cincinnati.         | 36"x36"x 8' Niles, 2 heads.    |
| 36"x26"x 6' Cincinnati.         | 36"x36"x10' Niles, 2 heads.    |
| 30"x36"x 8' Cincinnati widened, | 60"x60"x12' Gleason, 3 heads.  |
| 2 heads.                        | 66"x66"x17' Harrisburg, 2 hds. |

### PRESSES.

- No. 8 Cleveland, NEW. Six No. 27 Swaine inclin., NEW.

### SHAPERS.

- 16" Columbia back grd. crank. Four 20" Walcott, shifting belt.

Marshall & Huschart Machinery Co.  
17 S. Jefferson St., Chicago, Ill.

# Miscellaneous Bargains

Air Compressor, G. E. centrifugal, 1100 cu.  
ft. capacity; motor driven.

Balancing Machine, No. 66 Defiance.

Blowers, No. 6 Sirroco; Root No.  $\frac{1}{2}$  rotary;  
Beach Russ No. 9 pressure.

Bolt Cutter, No. 3 D. & H. 1".

Centering Machines, Whiton 4"x24", 4"x36";  
Hurlbut & Rogers No. 4.

Filing Machine, Cochrane-Bly.

Keyseaters, No. 1 & No. 2 Davis; No. 2 Baker.

Moulding Machines, Tabor 24" combination.

Polishing Jacks; Diamond, Roth, Robinson,  
Bennett & O'Connell.

profilers, Garvin, Betts, Putnam.

Presses, Barnes Screw; 30-ton Lucas forcing;  
LaPointe Nos. 2 & 3 broaching, No. C-2  
Ferracute o. b. i.; No. C-82 Ferracute  
internal notching.

Metal Band Saws, Clark 30".

Oil Separators, DeLaval and American.

Riveters, Bilton, Grant, No. 5-A High Speed.

Shear, Niagara 42".

Slotters, Garvin die; No. 0 L. & W. horizontal oscillating.

Tappers, 2-X & 2-H Garvin; Excelsior  $\frac{1}{2}$ ";  
National 4-spindle.

*Write for February Bargain List of Drill Presses,  
Lathes, Millers, Grinders, Hobbers, etc.*

**Peninsular Machinery Co.**  
431 E. Jefferson Ave., Detroit, Mich.

# Exceptional Offerings

American Heavy 18"x6' Turret Lathe.  
Baird No. 2 Kick Presses.  
Cincinnati 10"x26" Gear Cutter.  
Cleveland  $\frac{3}{8}$ " to  $\frac{1}{2}$ " Automatic Screw Machine.  
"Colburn" No. 0 Key Seater.  
Gould & Eberhardt 12"x6" Gear Cutter.  
Grant  $\frac{1}{2}$ " Rivet Spinning Machine.  
Heald No. 60 Cylinder Grinder Serial No. 696.  
Hendey 18"x6' Brass Finisher's Lathe.  
"Ingle" 12" Gear Tooth Rounding Machine.  
Nutter Barnes 6" Cold Cutting-Off Saw.  
Peerless 6"x6" High Speed Power Metal Hack Saw.

(Selected from our Boston Stock of  
**HI-GRADE USED** Machine Tools)

## W.H.J. Fitzgerald & Co.

*New and Used Machine Tools*

165 High Street,

Boston, Massachusetts

## New and Used Machinery

### NEW

- 1—26x12' 6" Quick Change Geared Head Oliver Lathe.
  - 1—18x10' Quick Change, Double Back Geared Oliver Engine Lathe.
  - 1—18x 8' Quick Change, Double Back Geared Oliver Engine Lathe.
  - 1—16x 7' Quick Change, Double Back Geared Oliver Engine Lathe.
  - 1—No. 2-B Open Type H. S. 4-Spindle Drill Press.
  - 1—No. 2-B Open Type H. S. 2-Spindle Drill Press.
  - 1—No. 1 Cleveland Miller.
  - 1—15" Potter & Johnston Shaper.
  - 1—Wade-American Bench Lathe.
  - 1—No. 4 Starke Bench Lathe.
  - 1—No. 3 Starke Bench Lathe.
  - 3—No. 1—6x6 Racine Metal Hack Saw Machines.
- Full line Electric Drills and Grinders.

### USED

- 1—No. 2 Klemm Metal Band Saw.
- 1—No. 1 Shinn Metal Band Saw.
- 3—No. 16 Bliss Horning Presses, with adjustable tables.
- 2— $\frac{1}{2}$ " Chicago Automatics.
- 1—No. 4 $\frac{1}{2}$  Williams Cutting-Off Machine with regular equipment.
- 3—20" Wheel and Lever Feed Drill Presses.
- 1—30" B. G. Power Feed Drill Press.

**W. L. ROMAINE MACHINERY CO.**  
214 SYCAMORE STREET, MILWAUKEE, WIS.

# Second Hand Machine Tools

## BORING MACHINES.

4" bar Detrick & Harvey floor type.  
No. 3A Universal horiz., table type.  
No. 2 Beaman & Smith, floor type,  
4" spindle, motor drive.  
24" bar Bement-Niles horizontal.

No. 1-3" Lucas horizontal.  
34" Colburn vertical, turret head.  
38" Niles vertical, 2 heads.  
42" Bullard vertical, 2 heads.

## DRILLS.

1 spindle Henry & Wright b. b.  
3-sp. Henry & Wright sens. b. b.  
3 spindle Taylor & Fenn sensitive.  
20" Prentiss Bros. sliding head, b. g.  
23" Rockford, tapping att.  
24" Pratt & Whitney, b. g. & p. f.  
42" Cinn.-Bick. sliding head, b. g.,  
p. f., cone drive, tapping att.

No. 1 Rockford horizontal.  
20" Baker Bros. style M, 4 h. p. mtr.  
No. 310 Baker Bros. heavy duty.  
6-sp. Hendey, pwr. feed to each spdl.  
No. 30-12 spindle Baush multiple.  
No. 12-8-spindle Natco multiple.  
No. 22-16-spindle Natco multiple.

## GRINDERS.

3"x18" Norton, plain cylindrical.  
6"x22" Norton, plain cylindrical.  
10"x48" H. & S. plain cylindrical.  
10"x30" Landis plain cylindrical.  
No. 18-12"x120" Landis plain cyl.  
18"x96" Norton plain, self contained  
motor drive.  
No. 3 Modern universal.  
12"x40" Landis universal.  
12"x60" Landis universal.

10" Garrigus rotary surface.  
B. & S. oscillating ball race.  
No. 11 Rivett oscillating.  
No. 5 Rivett hand feed oscillating.  
No. 34 Van Norman internal.  
No. 6 Rivett internal.  
29" Besly disc.  
No. 6 A Bryant internal.  
18" Ney double disc.  
No. 60 Heald cylinder.

## LATHES.

No. 5 Rivett bench, slide rest.  
11x5 Seneca Falls, c. r., p. c. f.  
13"x6" Willard c. r., p. c. f.  
14"x6" Reed c. r., p. c. f., t. a.  
16"x8" Flather, q. c. c. r., p. c. f.  
18"x8" Prentiss Bros. geared hd., ck.  
18"x6" Hendey c. r., p. c. f., tap. att.  
20"x19" Reed, c. r., p. c. f.

22"x8" Schumacher-Boye, c. r., p. c. f.  
22"-34"x8" Lodge & Shipley selective  
head manufacturing.  
26"x12" Putnam, c. r., d. b. g.  
32"x14" Hamilton, c. r., p. c. f.  
38"x20" New Haven, c. r., p. c. f.  
56"x24" Wood & Light, c. r., p. c. f.

## MILLERS.

No. 14 Garvin plain.  
Rivett hand, precision.  
No. 3 Cincinnati plain, all feeds.  
No. 3 Cincinnati plain, cone drive.  
No. 4 Cincinnati plain, all feeds.  
No. 2-A Kempsmith plain, b. g.

No. 1½ LeBlond univ., motor drive.  
No. 2 LeBlond univ., belt drive.  
Nos. 3 & 4 Cincinnati high pwr. vert.  
No. 4-B Becker vertical.  
No. 12 B. & S. Manufacturing.

## TURRET MACHINES.

16" Acme univ. friction back gear.  
20" Steinle heavy duty, geared head.  
20x10 Fay & Scott univ. turret lathe.  
24x10 Lodge & Davis turret.  
24" Gisholt turret, 6" hollow spdl.  
Fay automatic turret lathe.  
2"x24" J. & L. flat turret, bar equip.  
3"x36" J. & L. chuck or bar equip.

34"x44" Cincinnati flat turret, bar  
and chuck equip.  
1" Bardons & Oliver turret, motor.  
No. 24 Garvin screw machine.  
No. 3 Windsor w. f. screw mach.  
4"-4 spindle National Acme auto.  
10"-4 spindle National Acme auto.

## MISCELLANEOUS.

Broaching mach., Nos. 4 & 5 J. N.  
Lapointe.  
Compressor, 8x8 Clayton single air.  
Gear cutter, 36"x9" B. & S. spur.  
Pipe mcne., No. 84 Curtis & Curtis.  
Planer, 24x24x6 Flather, one head.  
Planer, 30x30x8 Pond, 2 heads.  
Planer, 36x36x12 Cincinnati, 4 heads.

Planer, 36x30x14 Cincinnati, 3 heads.  
Planer, 48x48x15 Sellers, 3 heads.  
Planer, 60x48x14 Gleason, 2 heads.  
Profiler, No. 13, P. & W., 1 spindle.  
Punch & shear, 10" throat, 1" cap.  
Shaper, 14" P. & W. crank.  
Shapers, 15" and 24" Hendey friction.

# HENRY PRENTISS & CO.

INCORPORATED

NEW YORK, N. Y. Warehouse, JERSEY CITY

## A Few Items of Our Large Stock

4—Gisholt Mfg. Lathes, 6" hollow spindle.  
Conradson Geared Head Lathe, 28"x14".  
Bridgeford Geared Head Lathe, 27"x14".  
3—Bridgeford 27"x9" d. b. g., q. c. g. Lathes.  
2—Bridgeford Axle Turning Lathes.  
Wickes Bros. 20"x18" d. b. g., q. c. g. Lathe.  
Whitcomb-Blaisdell, Fay & Scott, and Putnam Lathes.  
2—Fitchburg Model "B" 12"x36" Cylindrical Grinders.  
No. 2 American Surface Grinder.  
Yates No. 275 Grinders, 36" and 48".  
Foster Thread Millers.  
Demco High Speed Drill.  
Briggs Type "B" Milling Machine, traverse of table 72".  
10—Hendey No. 4 Lincoln Type Milling Machines.  
30—Fox No. 3½ and Bristol No. 0 Milling Machines.  
10—Becker No. 7H Milling Machines.  
Hurlbut-Rogers 4" and Davis 6" Cutting-off Machines.  
Allen High Speed Drills 4, 5 and 6 spindle.  
New Williams & White No. 25 Bulldozer.  
Lea Simplex No. 18 Cold Saw.  
No. 3 High Speed Riveting Hammer.  
7—20" Lathe Chucks, 10—Air Chucks and 50—Drill Chucks.

## McDonald Machinery Company

712-714 N. Main St., - - - - - St. Louis, Mo.

## Right Equipment-Right Condition-Right Prices

### SCREW MACHINES

Foster No. 2 hand, 1-1/16" capacity, regular equipment.  
National Acme No. 55, 4 spindle automatic, 1½".  
Gridley 2½" capacity, 4 spindle automatic, standard equipment.  
Pratt & Whitney No. 1 hand, 7/16" capacity, w. f., a. c.

### GRINDERS

Saxon vert. cyl., auto. feeds.  
Van Norman No. 3 internal.  
P. & W. 6"x48" pl., reg. equip.

### LATHES

American 14"x 6' comp. rest.  
Blaisdell 16"x 6', elev. rest, p. c. f., chuck.  
Perkins 15"x 8' c. r., 1-3/16" hollow spindle.

### MILLING MACHINES

Rockford No. 1½ plain, latest.  
Becker 5-C vert., reg. equip.  
B. & S. No. 7 plain, 47" table.  
Cincinnati No. 3 vert., high pwr.

### MISCELLANEOUS

Merriman 14" cap. Bolt Cutter.  
Grant 18" Semi-Universal Radial, 36" rd. table.  
Allen No. 1 Ball Bearing Sensitive Drill.  
Barnes 26" Sliding Head Upright Drill.

**LYND-FARQUHAR CO., Dept. G** Quality Machine Tools  
BOSTON 9, MASS.

# ReMANUFACTURED -(ORIGINATED BY US)- MACHINE TOOLS

EVERY ReMANUFACTURED MACHINE TOOL in our place represents an unusual BARGAIN. A card will bring our latest GREEN LIST containing 2000 machine tools. We welcome inspection of our plant and our process.

## LATHES.

- 1-3"x60" Fitchburg Lo-Swing.
- 8-3"x60" Fitchburg Lo-Swing.
- 1-8"x84" Fitchburg Lo-Swing.
- 1-Bridgeford heavy duty d.e.axle.
- 31-14"x6' Reed ex.hvy.pl.turning.
- 7-16"x6' Reed.
- 1-16"x7' Reed.
- 12-17"x6' LeBlond mfgr'a. auto.
- 21-18"x8' Boye & Emmes, belt fd.
- 8-18"x8' Boye & Emmes, q. c. g.
- 1-18"x10' Whitcomb-B., gd. hd.
- 21-19"x8' LeBlond, q. c. g., c. r.
- 28-19"x8' LeBlond, hex. carr. tur.
- 31-19"x8' LeBlond, p. f. turret.
- 14-20"x8' LeBlond, c. r., q. c. g.
- 97-20"x8' American, c. r., q. c. g.
- 12-20"x8' American, p. f. turret.
- 3-20"x8' American, motor arr.
- 3-20"x10' Lodge & S., grd. hd.
- 18-21"x10' Le Blond, c. r., q. c. g.
- 34-21"x10' LeBlond, carr. turret.
- 19-22"x8' Davenport.
- 1-22"x8' Lodge & S., motor arr.
- 9-25"x10' LeBlond, c. r., q. c. g.
- 13-26"x9' Bridgeford, c. r., q. c. g.
- 105-26"x10' Bridgeford, c. r., q. c. g.
- 23-26"x12' Bridgeford, c. r., q. c. g.
- 2-26"x16' Bridgeford, c. r., q. c. g.
- 2-26"x18' Bridgeford, c. r., q. c. g.
- 2-26"x20' Bridgeford, c. r., q. c. g.
- 32-26"x10' Niles-B.-P., c. r., q. c. g.
- 1-26"x11' Walcott, c. r., q. c. g.
- 1-26"x12' Wickes, c. r.
- 1-26"x12' Putnam, c. r., semi q. c. g.
- 3-26"x12' Putnam, motor drive.
- 1-29"x14' Walcott, c. r., q. c. g.
- 6-30"x11' American, geared head.
- 1-30"x20' American, geared head.
- 2-30"x11' Houston-Stanwood & G.
- 1-30"x12' American.
- 19-32"x12' Pittsburg, c. r., q. c. g.
- 3-36"x14' Johnson, triple geared.
- 4-36"x37' Niles - Bement - Pond, geared head.
- 2-36"x19' Johnson, triple geared.

## LATH FS—Continued.

- 5-40"x12' Fitchfield, triple geared.
- 1-40"x18' Fitchfield, triple geared.
- 2-45"x24' Pond, triple geared.

## BORING MILLS.

- 1-10' Niles vertical.
- 1-34" bar Binse horizontal.
- 1-4" bar Niles horizontal.
- 1-Beaman & Smith horiz., 2 heads.
- 1-2 spindle Espen Lucas, 2 heads.

## SHAPERS AND PLANERS.

- 2-20" Niles-Bement-Pond.
- 4-26" Niles-Bement-P., motor dr.
- 4-26" Niles-Bement-P., motor arr.
- 2-26" Niles-Bement-Pond, belt dr.
- 2-26" Kelley, back geared.
- 2-36"x12"x14' N.-B.-P., frog & sw.
- 1-56"x56"x10' Gray, 2 heads.
- 1-72"x72"x14' Niles, 4 heads.
- 1-96"x72"x20' Bement-M., 4 hds.

## MISCELLANEOUS.

- 1-1" Pratt & Whitney screw mch.
- 3-2" Pratt & Whitney screw mch's.
- 12-No. 2 W. & S. turret lathes.
- 5-No. 2 Foster screw machines.
- 3-No. 4 Wood turret screw mch's.
- 1-No. 4, 18" Southworth scr. mch.
- 4-No. 75 4-sp. National Acme automatic screw machines.
- 1-No. 6 B. & S. screw machine.
- 42-No. 7-H Becker Lincoln millers.
- 62-No. 34 Fox, power feed millers.
- 2-type B 34" Briggs millers.
- 1-No. 1 Dow plain miller.
- 1-No. 2 B. & S. vertical miller.
- 2-No. 4-B Becker vertical miller.
- 2-No. 4 Cincinnati pl.miller,s.p.d.
- 46-12" Cincinnati pl. millers.
- 1-39"x12' Newton slab miller, 2 sp.
- 1-45"x10' Newton slab miller.
- 1-39"x10' Beaman & Smith, slab miller, 3 heads.
- 1-26"x8' Ingersoll slab miller, 2 heads, motor.

Write for our Green List describing these and many others

HILL, CLARKE & CO. OF CHICAGO  
649 W. WASHINGTON BLVD., CHICAGO, ILL.

# PRESSES

## Immediate Delivery

- 2-No. 77½ Bliss Straight Side,  
tie-rod frame 10", 12 & 18" str.  
1-No. 167-A Consolidated double  
crank, tie-rod frame equal 7-B  
Bliss.  
1-No. 65 Consolidated.  
1-No. 2-W Bliss Wiring.  
1-No. 55-S Toledo Geared.  
2-No. 55-DG Ferracute.  
2-No. 56-DG Ferracute.  
1-No. 46 Bliss Press.  
1-8' Ohls Brake,  $\frac{1}{2}$ " capacity.  
1-Long Allstatter Mult. Punch,  
7" shaft 96" between uprights.  
1-28" Gould & Eberh. Shaper.  
1-24" Gould & Eberh. Shaper.  
1-No. 57 Toledo Sgl. Crank Tie  
Rod, jaw clutch Sgl. geared.  
2-No. 78½ Bliss Straight Side,  
tie-rod frame 12, 14 and 22" str.  
2-No. 76½ Bliss Straight Side,  
tie-rod frame, 8 and 16" stroke.  
1-No. 27 Bliss Knuckle Joint.  
2-No. 666 Toledo Knuckle Joint.  
1-No. 2 Toledo Inc. Fly-wheel.  
1-No. 3 Toledo Inc. Fly-wheel.  
1-59 Toledo Straight Side, dou-  
ble geared, 12" stroke.  
1-59½ Toledo Straight Side,  
dbl. ard. 12" str., tie rod frame.  
2-No. 14 Toledo Horn Presses,  
flywheel.  
2-No. 6 Toledo Inclinable, grd.  
1-No. E-6 Ferracute, geared.  
1-No. 72 Consolidated, fly-wheel.  
1-69-N Bliss Geared Cam Press.

D.C. Oviatt & Co., 401 Garfield Bank Bldg.,  
CLEVELAND, OHIO

Presses, Sheet Metal and Can Machinery.

## Grand Rapids Specials

Broaching machine, keyway,  
No. 4 Burr.  
Broaching machine, No. 2 J. N.  
LaPointe.  
Cut-off mch., No. 4 Nutter-B.  
Cut-off mch., No. 4 Cochrane-B.  
Drill, 29" Barnes, all-gearred.  
Drill, 10-sp. Grand R. mult.  
Grinder, 6-A Bryant, chucking.  
Hammer, 125 lb. Kane & R., pwr.  
Lathe, 18" x 10' Schumacher-B.  
Lathe, 24" x 10' Schumacher-B.  
Marking mch., No. 3 Dwight-S.  
Planer, 30" x 30" x 8' Pond.  
Profiler, No. 2-H Becker.  
Punch, mult., No. 3 Kane & R.

Punch & sh., L 10 Rock River.  
Radial, wall. No. 51 Canedy-Otto.  
Radial, 3' Fosdick Holloway.  
Sand blast outfit, A-6 Pang-  
born, (2).  
Screw machine, 1-1/16" Cleve-  
land automatic.  
Screw mch., 2" Cleveland auto.  
Shaper, 20" Smith & M., crank.  
Shear, power sq., 96" Ohl, 16 ga.  
Spline miller, 4" P. & W.  
Turret lathes, 2x24 J. & L., (2).  
Turret lathe, 3x36 J. & L.  
Turret lathe, No. 5 Foster.  
Welding outfit, 80 lb. Davis-  
Bournonville.

## McMullen Machinery Company

*"Everything in Shop Equipment"* Grand Rapids, Mich.

# Harris Brothers Co.

## 1475 W. 35th St., Chicago, Ill.

### Turret Lathes, Bar and Chucking.

24" Steinle, turret tool post on carriage and hex. turret on bed, rapid traverse.  
24" Gisholt, same. (10).  
28" Pond, same. (2).  
24" W. P. Davis, (2).

8" No. 1 Pratt & Whitney hand screw mch., 7/16" auto. ck. cap.  
14" Canada, 3-hole set-over tur., (10).  
18" Milwaukee, turret on bed. (10).  
8" No. 1 Pratt & Whitney hand screw mach., 7/16" auto. ck. cap.

### Gear Cutters, Keyseaters, Grinders.

Morton, 18" stroke, for 14" wide.  
Morton, 24" stroke, for 24" wide.  
12"x36" Fitchburg plain, (3).  
9"x15" Ford Smith plain.  
10x48 B. & S. plain grinder.  
16x60 Landis crank shaft grinder.

Grinder 6x32 Norton Cylindrical.  
American Blower Co., (Sirocco Type) 5'2"x7'4", upper casing 4"x8".  
Double Inlet 36". Upper Cone shaped quadruple outlet 36".  
Capacity 25,000 cu. ft. per min. (12).

### Hammers, Plate Bending Rolls, Punch Presses.

Erie 600 lbs. single frame, (2).  
Erie 1,500 lbs. single frame.  
1000 lb. Lennox, friction board drop.  
1250 lb. Massillon, steam drop.  
6" New Doty, capacity 1" plate.  
30" Q. C. sgl. end cap. 1" x 1".  
Wiener T40 shear for 15" I Beams,  
4" x 8" angle, wt. 20,000 lbs.  
No. 56 D.G.G. Ferracute, str. sided.

No. 55 D. G. Ferracute, straight sided, (2).  
No. 27 Bliss, knuckle joint.  
Hydraulic presses, accumulators and pumps.  
Ferracute E57 Vertical Straight Side Bed, weight each, 140,000 pounds, Punch Presses, (2).

### Drill Presses and Boring Machines.

8-spdl. Baush, univ. adjustable 20"  
circular head, capacity 1".

Foot-Burt 3 spdl. adjustable vert.

### Planers, Shapers and Slotters.

24"x24"x5' Gray.  
35"x36"x12' Niles, 2 heads.  
20" Pedrick & Ayer, 2 tables.

12" Putnam rotary table slotter.  
18" Betts rotary table slotter.  
18" & 20" Niles rotary table slotters.

### Miscellaneous.

Air compressor, 2650' Class W. N. Twin Angle Compound Sullivan, 100 lb. pressure. Direct connected to 400 h. p., 2200 volt, 3 phase, 60 cycle motor. Low pressure cylinder 22, horizontal high pressure cylinder 13" vertical, stroke 14" with 3 phase intercooler; or will convert into a Belt Driven Single or Double Unit, or will offer as a single unit, direct connected to 250 h. p. Westinghouse, 440 volt, 3 phase, 60 cycle motor.

Bolt cutter, 1" Acme, 4-spindle. Centering machine, 6" Pratt & Whitney. Centering machine, 9" Whiton. Cutting-off machines, for 2", 3", 4" & 6" pipe and shafting. Motors, 8 Westinghouse, 250 h. p., 440 volt, 60 cycle, 3 phase, speed 514 r. p. m., Type C.C.L. squirrel cage, with base, with starters. Nut facing machines. Nut tapper, Acme 4-spdl. 1 1/2" vert. Pipe threaders, Curtis 2 1/4 & 6.

Write for Industrial Bulletin No. 204

# Don't Pass This Up

48" Newton Gear Hobber.....	\$2500.
72" Brown & Sharpe Auto. Gear Cutter.....	5000.
72" Betts Vertical Mill.....	5500.
32"x10' Pond Planer, 2 Heads.....	1500.
3H LeBlond Universal Miller.....	2250.
2A Hendey Norton Universal Miller.....	1600.
No. 4 Cin'ti Plain Miller (gear box feeds).....	1800.
3' Prentice Radial.....	875.
24" Aurora Drill, Tapping Attach.....	550.
4' Fosdick Radial, cone drive, t. a.....	1000.
No. 13 B. & S. Gear Cutter.....	1300.
24"x14' Boye & Emmes Lathe, Q. C., T. A.....	2000.
24"x12' Advance Lathe, Q. C.....	1350.
18"x 6' Barker Lathe, L. C.....	450.
21"x10' LeBlond Heavy Duty, Q. C. Lathe.....	1200.
22"x 6' Gray Planer.....	900.
18C Bliss O. B. I. Press.....	250.
1½" Reliance Bolt Cutter.....	400.
19"x12' Greaves-Klusman Lathe.....	825.

## 100 Other Machines

**JONES MACHINE TOOL CO.** 435 E. Pearl St.  
Cincinnati, Ohio

## BENNETT BARGAINS

### BORING MACHINES—Horizontal

2½", 2¾", 3", 3½", 4".

### DRILLS—Radial

2½", 3½", 4".

### DRILLS—Upright

12", 20", 21", 24", 25", 36", 42".

### DRILLS—Multiple

2 and 3 spindle.

### LATHES

Various sizes from 14" to 102" swing, 6' to 22' bed.

### MILLING MACHINES

20"x7' Brainard Slab.

Bement Mfrs., Lincoln Type.

No. 24 Garvin Vertical.

No. 6 Becker vert., table 54x18.

No. 2 Lodge & Davis Plain.

No. 1 Rockford pl., table 30x7½.

Betts Style D Manufacturers.

No. 2 Milwaukee Plain, 39x10.

### TURRETS

24" Gisholt.

18x6½ Jones & Lamson.

18"x6' Warner & Swasey.

20"x6' also 8' Bullard.

2x24 Jones & Lamson.

Also Punches and Shears, Gear Cutters, Shapers, Slotters,  
Grinders, Hammers, Presses, Cranes, Bolt and Pipe Machines

Advise us of all equipment you wish to purchase or sell

**G. L. BENNETT MACHINERY CO., INC.,** 30 CHURCH ST., NEW YORK CITY

# New Machinery For Sale

In Stock at Chicago and New York

## Lathes

24"x12' Chard, q. c. g., d. b. g.  
20"x11' Chard, q. c. g., d. b. g., (2).  
20"x10' Wickes, q. c. g., d. b. g.  
16"x6' Whitcomb-Blaisdell.  
14"x 8' Cisco, q. c. g., d. b. g.

12"x 5' 6" Davis tool room,  
6"x30" and 6"x36" Dalton bench.  
Full line, Rivett precision bench.  
Full line Stark precision bench.

## Drilling Machines

2' Wisconsin sensitive radial.  
32" Cleveland sliding head.  
28" Cleveland sliding head.  
25" Cleveland upright.  
23 1/2" Cleveland, upright.  
23" Snyder upright.  
22" Cleveland upright.

21" Cleveland upright, (5).  
20" Wisconsin, all-gearred, (2).  
20" Canedy-Otto, upright, (4).  
14" U. S.  
Belt and motor driven bench.  
Van Dorn portable electric.

## Boring and Drilling Machines

No. 9 Pawling & Harnischfeger, (2). | No. 12 Pawling & Harnischfeger.

## Milling Machines

No. 2-B Fox plain.  
Nos. 1-A, 1-B and 0-B Fox plain.

Burke bench.  
U. S. No. 1, hand.

## Grinders

No. 3 Modern universal.  
No. 1 Wilmarth & Morman univ.  
Lafayette universal.  
10"x32" Ott universal.  
No. 103 Rivett internal.  
No. 2 Reid surface.  
6"x6" Ott internal.

Webster & Perks. No. 2 universal.  
No. 1 Norton cutter and tool.  
Grand Rapids drill—various sizes.  
Partridge floor stands, (all sizes).  
Strand electric, flexible shaft.  
Dumore, (all sizes).

## Shapers

24" Milwaukee.  
20" Milwaukee heavy duty.

16" Milwaukee.  
7" Rhodes horizontal.

## Hack Saws

Peerless, (all sizes).  
No. 1 Racine.

6"x6" Starrett.  
6"x6" Economy.

## Miscellaneous

Arbor presses, Atlas, all sizes.  
Buffing machine, No. 2 Blount.  
Filing machines, Nos. 2 & 3 Barry.

Press, Lebanon, foot.  
Shear, 18-H Lenox, throatless.  
Tinners' rolls, Pexto.

## USED MISCELLANEOUS

Cold Saw, No. 15 Lea Simplex.  
Lathe, 14"x5' Dreses Monitor, (2).

Lathe, 24" Steinle turret.

# Dale Machinery Co., Inc.

Formerly

DALE-BREWSTER MACHINERY CO., INC.

541-7 W. Washington Blvd., - - - - Chicago

54-60 Lafayette St., - - - - - New York

Address all inquiries attention Department A

## **Anderson Improved Balancing Ways**

**Ever-Ready—Sensitive—Reliable**



They need no adjusting. The rotating discs made of chilled iron run in specially designed ball bearings and are exceptionally sensitive.

Made in various sizes for balancing pulleys, gin brushes, turbine rotors, crank shafts, polishing wheels, fly wheels, etc.

"Swing"	20°	40°	60°	72°	96°
Greatest distance between standards.....	20°	30°	30°	66°	88°
Capacity in lbs. ....	1000	2000	2000	5000	10000
Approx. shipping weight.....	45	90	150	350	650
Code .....	Bend	Bid	Bis	Bib	Ben

*Full details on request*

**Anderson Bros. Mfg. Co.**  
1915 Kishwaukee St., Rockford, Ill.

## **30% Saving**

### **Two 17"x12' LeBlond Engine Lathes**

I bought these Lathes before present business depression, and must sacrifice them to raise money. They are the very latest improved LeBlond Lathes, are brand new, and have never been off original skids. They are the Heavy Duty Quick Change type, take in 8' 3" between centers, and are equipped with double friction back gear, compound rest, pan bed, and countershaft.

These Lathes cost me \$1760.00 each f. o. b. Cincinnati, and for cash I will sacrifice them for \$1250.00 each.

**Address: Box 10,**  
**Care A. H. Hitchcock, 1220-1235 Caxton Bldg., Chicago, Ill.**

## Classified Finding Index

- Air Guns**  
Fowill Co., Wm., Cincinnati
- Angle Plates**  
Boston Scale & Mch., Co., Roxbury, Mass.  
Fairbanks Company, The, New York  
Germanow-Simon Machine Wks., Rochester  
Reid Brothers, Co., Inc., Beverly, Mass.  
Whiting & Comstock, Hartford, Conn.
- Arbors, Roller Grip**  
Alert Tool Co., Philadelphia
- Arbors, Solid**  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
E. O. Partridge 2047 W. Lake St., Chicago
- Automatics**  
National Acme Co., Cleveland  
New Britain Machine Co., New Britain, Conn.
- Balancing Ways**  
Anderson Bros. Mfg. Co., Rockford, Ill.
- Ball Bearings**  
Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York
- Balls, Brass, Bronze and Steel**  
Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York
- Band Saw Machines, for Metal**  
Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago
- Barrels, Tumbling**  
Abbott Ball Co., Hartford, Conn.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago
- Belt Shifter**  
Kremer-Cummins Machine Co., Cleveland
- Bench Legs, Steel**  
New Britain Mch., Co., New Britain, Conn.
- Bending Machines, Hand and Power**  
Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago
- Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A. 116 Walker St., N. Y.  
Lewthwaite Mch., Co., T. H. 417 E. 31st., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia
- Bending Rolls, Plate and Angle**  
Ryerson & Son, Jos. T., Chicago  
Wiches Bros., Saginaw, Mich.
- Blow Torch, Gas-Electric**  
North American Mfg. Co., Cleveland
- Blue Printing Machines**  
Paragon Machine Co., Rochester, N. Y.  
Wiches Brothers, Saginaw, Mich.
- Boring Bars**  
Alert Tool Co., Philadelphia  
Madison Mfg. Co., Muskegon, Mich.  
Pedrick Tool & Machine Co., Philadelphia  
Ready Tool Co., Bridgeport, Conn.  
Rigid Tool Holder Co., Washington, D. C.  
Underwood Corp., H. B., Philadelphia
- Boring Bars, Cylinder**  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia
- Boring, Drilling and Milling Machines, Horizontal**  
Barnes Co., W. F. & John., Rockford, Ill.  
Beaman & Smith Co., Providence, R. I.  
Carroll Dry & Mch. Tool Co., Bucyrus, Ohio  
Pawling & Harnischfeger Co., Milwaukee  
Ryerson & Son, Jos. T., Chicago  
Simmons Mchne Co., Albany, N. Y.
- Boring Machines, Horizontal**  
Avey Drilling Machine Co., Cincinnati  
Pedrick Tool & Machine Co., Philadelphia
- Boring and Turning Machines, Vertical**  
Simmons Machine Co., Albany, N. Y.  
Turner Machine Co., Danbury, Conn.
- Bowden Wire Mechanism**  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York
- Brazes**  
Lagerholm Co., E., 9 S. Clinton St., Chicago  
Veeco Mfg. Co., Inc., Greenfield, Mass.
- Broaching Machines**  
Simmons Machine Co., Albany, N. Y.
- Bushings, Brass and Bronze**  
Bunting Brass & Bronze Co., Toledo, Ohio
- Case Hardening Compound**  
Buchanan Chemical Co., C. G., Cincinnati
- Casters for Trucks**  
Hamilton Caster & Mfg. Co., Hamilton, Ohio
- Centers, Index**  
Abrasive Mch. Tool Co., E. Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Carter & Hakes Mch. Co., W. Winetka, Conn.  
Dickow Machinery Co., Fred C., 3504 W.  
Lake St., Chicago  
Whiting & Comstock, Hartford, Conn.
- Chains, Power Transmission**  
Cullinan Wheel Co., 1344 Altgeld St., Chicago  
Whitney Mfg. Co., Hartford, Conn.
- Chasers**  
Modern Tool Co., Erie, Pa.  
National Acme Co., Cleveland
- Chucking Machines**  
New Britain Mch. Co., New Britain, Conn.
- Chucks, Air**  
Frontier Chuck & Tool Co., Buffalo, N. Y.
- Chucks, Centering**  
McCrosky Tool Corporation, Meadville, Pa.  
Thomas Elevator Co., 31 So. Hoyne Av., Chicago
- Chucks, Draw-in and Thrust**  
Hardinge Bros., 1770 Bertrand Av., Chicago
- Chucks, Drill**  
Hartford Special Mch. Co., Hartford, Conn.  
Jacobs Mfg. Co., Hartford, Conn.  
McCrory Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago  
Weaver Mfg. Co., Springfield, Ill.

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## Classified Finding Index

**Air Guns**  
Fowell Co., Was., Cincinnati

**Angle Plates**

Boston Scale & Mch. Co., Roxbury, Mass.  
Fairbanks Company, The, New York  
Germanow-Simon Machine Wks., Rochester  
Reid Brothers, Co., Inc., Beverly, Mass.  
Whiting & Comstock, Hartford, Conn.

**Arbors, Roller Grip**  
Alert Tool Co., Philadelphia

**Arbors, Solid**

Nicholson & Co., W. H., Wilkes-Barre, Pa.  
E. O. Partridge 2047 W. Lake St., Chicago

**Automatics**

National Acme Co., Cleveland.  
New Britain Machine Co., New Britain, Conn.

**Balancing Ways**

Anderson Bros. Mfg. Co., Rockford, Ill.

**Ball Bearings**

Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn,  
New York

**Balls, Brass, Bronze and Steel**

Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn,  
New York

**Band Saw Machines, for Metal**

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Av., Chicago

**Barrels, Tumbling**

Abbott Ball Co., Hartford, Conn.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

**Belt Shifter**

Kremer-Cummins Machine Co., Cleveland

**Bench Legs, Steel**

New Britain Mch. Co., New Britain, Conn.

**Bending Machines, Hand and Power**

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Av., Chicago

Hendley & Whitemore Co., Beloit, Wis.  
Lengthwaite Co., Gen. A. 111 W. Water St., N. Y.  
Lengthwaite Mch. Co., 7 H. 417 E. 31st St., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Bending Rolls, Plate and Angle**

Ryerson & Son, Jas. T., Chicago  
Wickes Bros., Saginaw, Mich.

**Blow Torch, Gas-Electric**

North American Mfg. Co., Cleveland

**Blue Printing Machines**

Paragon Machine Co., Rochester, N. Y.  
Wickes Bros., Saginaw, Mich.

**Boring Bars**

Alert Tool Co., Philadelphia  
Madison Mfg. Co., Muskegon, Mich.  
Pedrick Tool & Machine Co., Philadelphia  
Ready Tool Co., Bridgeport, Conn.  
Rigid Tool Holder Co., Washington, D. C.  
Underwood Corp., H. B., Philadelphia

**Boring Bars, Cylinder**

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Boring, Drilling and Milling Machines, Horizontal**

Barnes Co., W. F. & John, Rockford, Ill.  
Beaman & Smith Co., Providence, R. I.  
Carroll Dry & Mch. Tool Co., Bucyrus, Ohio  
Pawling & Harnischfeger Co., Milwaukee  
Ryerson & Son, Jas. T., Chicago  
Simmons Machine Co., Albany, N. Y.

**Boring Machines, Horizontal**

Avey Drilling Machine Co., Cincinnati  
Pedrick Tool & Machine Co., Philadelphia

**Boring and Turning Machines, Vertical**

Simmons Maching Co., Albany, N. Y.  
Turner Machine Co., Danbury, Conn.

**Bowden Wire Mechanism**

Gwilliam Co., The, 23 Flatbush Ave., Brooklyn,  
New York

**Broaches**

Lagerholm Co., E., 9 S. Clinton St., Chicago  
Volvo Mfg. Co., Inc., Greenfield, Mass.

**Broaching Machines**

Simmons Machine Co., Albany, N. Y.

**Bushings, Brass and Bronze**

Bunting Brass & Bronze Co., Toledo, Ohio

**Case Hardening Compound**

Buchanan Chemical Co., C. G., Cincinnati

**Casters for Trucks**

Hamilton Caster & Mfg. Co., Hamilton, Ohio

**Centers, Index**

Abrasive Mch. Tool Co., E. Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Dichlow Machinery Co., Fred C., 3504 W.  
Lake St., Chicago  
Whiting & Comstock, Hartford, Conn.

**Chains, Power Transmission**

Cullman Wheel Co., 1344 Altgeld St., Chicago  
Whitney Mfg. Co., Hartford, Conn.

**Chasers**

Modern Tool Co., Erie, Pa.  
National Acme Co., Cleveland

**Chucking Machines**

New Britain Mch. Co., New Britain, Conn.

**Chucks, Air**

Frontier Chuck & Tool Co., Buffalo, N. Y.

**Chucks, Centering**

McCrosky Tool Corporation, Meadville, Pa.  
Thomas Elevator Co., 31 So. Hoyne Ave.,  
Chicago

**Chucks, Draw-in and Thrust**

Hardinge Bros., 1770 Beretton Av., Chicago

**Chucks, Drill**

Hartford Special Mch. Co., Hartford, Conn.  
Jacobs Mch. Co., Hartford, Conn.  
McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Thomas Elevator Co., 31 S. Hoyne Ave.,  
Chicago  
Weaver Mfg. Co., Springfield, Ill.

## Classified Finding Index

### Chucks, Drill and Tap

McCrooky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Peter Bros. Mfg. Co., Algonquin, Ill.

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

### Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

### Chucks, Lathe

Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

### Chucks, Magnetic

Head Machine Co., Worcester, Mass.

### Chucks, Wrenchless

Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

### Clutches, Friction

Edgemont Machine Co., Dayton, Ohio  
Milwaukee Shaper Co., Milwaukee, Wis.

### Cold Saws

Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Fairbanks Company, The, New York  
Peter Bros. Mfg. Co., Algonquin, Ill.

### Collets, Lathe and Screw Machine

Harding Bros., 1770 Bertrand Ave., Chicago  
Morrison Machine Products Co., Inc., Rochester, N. Y.

### Contract Work Wanted

Chicago Perrule & Nut Co., 280 Lill. Ave., Chicago

### Couplings, Flexible

Cooper Flexible Transmission Co., Inc., Brooklyn

### Cranes, Hand Power

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.  
Weaver Mfg. Co., Springfield, Ill.

### Cranes, Portable

Candy-Otto Mfg. Co., Chicago Heights, Ill.  
Canton Foundry & Mfg. Co., Canton, Ohio  
Weaver Mfg. Co., Springfield, Ill.

### Cranes, Traveling

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.

### Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Cutters, Adjustable

Fairbanks Company, The, New York  
McCrooky Tool Corporation, Meadville, Pa.  
Madison Mfg. Co., Muskegon, Mich.

### Cutters, Bolt

Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

### Cutters, Keyseating

Lagerholm Co., E., 9 S. Clinton St., Chicago  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Whitney Mfg. Co., Hartford, Conn.

### Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.  
Clough, R. M., Meriden, Conn.  
Genesee Mfg. Co., Rochester, N. Y.  
Lagerholm Co., E., 9 S. Clinton St., Chicago  
Moback Tool & Machine Co., Boston  
Whitney Mfg. Co., Hartford, Conn.

### Cutting-Off Machines

Davis Machine Tool Co., Rochester, N. Y.  
Etna Mfg. Co., Toledo, Ohio  
Peter Bros. Mfg. Co., Algonquin, Ill.

### Cylinder Boring Machines, Portable

Pedrick Tool & Machine Co., Philadelphia  
Stow Flexible Shaft Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Cylinder or Dome Facing Machines

Underwood Corp., H. B., Philadelphia

### Die Heads, Self-Opening

Modern Tool Co., Erie, Pa.  
Murphy Machine & Tool Co., Detroit, Mich.  
National Acme Company, Cleveland

### Dicing Machines

Henry & Wright Mfg. Co., Hartford, Conn.

### Dies, Pipe Threading

Bignalik-Koeler Mfg. Co., Edwardsville, Ill.  
Hardinge Brothers, 1770 Bertrand Av., Chicago  
National Acme Co., Cleveland

### Dies, Screw and Thread Cutting

Hardinge Brothers, 1770 Bertrand Av., Chicago

### Dies, Self-Opening Adjustable

Modern Tool Co., Erie, Pa.  
Murphy Mfg. & Tool Co., Detroit, Mich.  
Rickett-Shafer Co., Erie, Pa.  
Victor Tool Co., Inc., Waynesboro, Pa.

### Dogs, Machine

Ready Tool Co., Bridgeport, Conn.

### Drilling Heads for Square Holes

Fairbanks Company, The, New York

### Drilling Machine Heads

Harris Engineering Co., Bridgeport, Conn.  
Sellew Machine Tool Co., Pawtucket, R. I.  
United States Drill Head Co., Cincinnati  
United States Machine Tool Co., Cincinnati

### Drilling Machines, Bench

Avey Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Bartel Machine Tool Co., Conneaut, Ohio  
Candy-Otto Mfg. Co., Chicago Heights, Ill.  
High Speed Hammer Co., Rochester, N. Y.  
Heed Co., Francis, Worcester, Mass.  
Taylor & Penn Co., Hartford, Conn.

### Drilling Machines, Horizontal

Pawling & Harnischfeger Co., Milwaukee, Wis.

### Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati  
Detroit Machine Tool Co., Detroit, Mich.  
Edlund Machinery Co., Inc., Cortland, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.  
National Acme Co., Cleveland  
Heed Co., Francis, Worcester, Mass.  
Sapp Machine Co., Paterson, N. J.  
Taylor & Penn Co., Hartford, Conn.

## Classified Finding Index

### Drilling Machines, Post

Candey-Otto Mfg. Co., Chicago Heights, Ill.  
Henry & Wright Mfg. Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Silver Mfg. Co., Salem, Ohio

### Drilling Machines, Radial

Candey-Otto Mfg. Co., Chicago Heights, Ill.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Pawling & Harnis, Elkhorn Co., Milwaukee, Wis.  
Ryerson & Son, Inc., T., Chicago  
Silver Mfg. Co., Salem, Ohio  
Taylor & Fenn Co., Hartford, Conn.  
Sipp Machine Co., Paterson, N. J.  
Wickes Bros., Saginaw, Mich.

### Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati  
Burke Machine Tool Co., Cincinnati, Ohio  
Candey-Otto Mfg. Co., Chicago Heights, Ill.  
Collins Machinery Co., Inc., Cortland, N. Y.  
Fenn Mfg. Co., Hartford, Conn.  
Hardinge Brothers, 1770 Bartman Av., Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Hoag Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.  
United States Machine Tool Co., Cincinnati  
Wisconsin Electric Co., Racine, Wis.

### Drilling, Milling and Boring Machines, Vertical

Aurora Tool Works, Aurora, Ind.  
Knight Machinery Co., W. B., St. Louis, Mo.

### Drilling Machines, Vertical

Aurora Tool Works, Aurora, Ind.  
Avey Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Candey-Otto Mfg. Co., Chicago Heights, Ill.  
Davis Machine Tool Co., Rochester, N. Y.  
The Fairbanks Company, New York  
Henry & Wright Mfg. Co., Hartford, Conn.  
Hinckley Machine Works, Hinckley, Ill.  
Minster Machine Co., Minster, Ohio  
Silver Mfg. Co., Salem, Ohio  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.

### Drilling and Tapping Attachments

Aurora Tool Works, Aurora, Ind.  
Harris Engineering Co., Bridgeport, Conn.  
Henry & Wright Mfg. Co., Hartford, Conn.  
McCrory Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Turner Machine Co., Danbury, Conn.

### Drills, Center

Cogdill Manufacturing Co., Detroit, Mich.

### Drills, Portable Pneumatic

Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Keller Pneumatic Tool Co., Grand Haven,  
Mich.

### Drills, Portable Electric

Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Standard Electric Tool Co., Cincinnati  
Stow Flexible Shaft Co., Philadelphia  
Wisconsin Electric Co., Racine, Wis.

### Dust Handling Equipment

Knickerbocker Co., Jackson, Mich.

### Emery Stands

Bloot Co., J. G., Everett, Mass.  
Partridge, E. O., 2047 W. Lake St., Chicago

### Emery Wheel Dressers and Cutters

Cleveland Blue Cleaner Mfg. Co., Cleveland  
Precision Truing Mch. & Tool Co., Cinci.  
Taylor & Fenn Co., Hartford, Conn.

### Facing Heads, Automatic

Mummert-Dixon Co., Hanover, Pa.

### Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

### Filing Machines

Cochrane-Bly Co., Rochester, N. Y.  
Johnson & Biddle Tool Co., Elkhart, Ind.

### Filing and Sawing Machines

Johnson & Biddle Tool Co., Elkhart, Ind.

### Flexible Shafts

Stow Flexible Shaft Co., Philadelphia, Pa.  
Strand & Co., N. A., 549 Washington Blvd.,  
Chicago

### Forges

Candey-Otto Mfg. Co., Chicago Heights, Ill.

### Forgings, Drop

Western Tool & Mfg. Co., Springfield, Ohio

### Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

### Furnaces

Bennett Co., W. R., Elmwood, Conn.  
Strong, Carlisle & Hammond Co., Cleveland

### Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.  
Western Tool & Mfg. Co., Springfield, Ohio

### Gauges, Amplifying, Snap and Plug

Ainge Tool, Die and Machine Works, Geo. H.,  
Springfield, Ohio

### Gauges, Taper

Hartford Special Mch. Co., Hartford, Conn.  
Way Co., A. F., Hartford, Conn.

### Gear Cutting Machines

Brown & Sharpe Mfg. Co., Providence, R. I.

### Gears

Merle-Korff Gear Co., 313 S. Clinton St.,  
Chicago

### Grinding Machines, Bench

Blount Co., J. G., Everett, Mass.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Ransom Mfg. Co., Oshkosh, Wis.

### Grinding Machines, Cutter, Reamer and Tool

Barnes Co., W. F. & John, Rockford, Ill.  
Blount Co., J. G., Everett, Mass.  
Clough, R. M., Meriden, Conn.

Grand Rapids Grinding Machine Co., Grand  
Rapids, Mich.

Greenfield Machine Co., Greenfield, Mass.

Manhattan Machine & Tool Works, Grand  
Rapids, Mich.

Modern Tool Co., Erie, Pa.

Mummert-Dixon Co., Hanover, Pa.

National Acme Co., Cleveland

Ransom Mfg. Co., Oshkosh, Wis.

Simmons Machine Co., Albany, N. Y.

Thompson Grinder Co., Springfield, Ohio

Wilmarth & Norman Co., Grand Rapids, Mich.

### Grinding Machines, Cylinder

Fluid Machine Co., Worcester, Mass.

Whitney & Son, Baxter D., Winchendon, Mass.

## Classified Finding Index

### Grinding Machines, Cylindrical

Brown & Sharpe Mfg. Co., Providence, R. I.  
Detroit Machine Tool Co., Detroit, Mich.  
Greenfield Machine Co., Greenfield, Mass.  
Manhattan Machine & Tool Works., Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.

Ott Grinder Co., Indianapolis, Ind.

Schmidt Co., B. L., Davenport, Iowa

Simmons Machine Co., Albany, N. Y.

Thompson Grinder Co., Springfield, Ohio

### Grinding Machines, Disc

Abrasive Mch. Tool Co., E. Providence, R. I.  
Manhattan Machine & Tool Works., Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.

Reed Bros. Co., Inc., Beverly, Mass.

Thompson Grinder Co., Springfield, Ohio

Wilmart & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Disc

Ransom Mfg. Co., Oshkosh, Wis.

Yellow Machine Tool Co., Pawtucket, R. I.

### Grinding Machines, Drill

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

La Salle Tool Co., La Salle, Ill.

Ransom Mfg. Co., Oshkosh, Wis.

Wilmart & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Face

Ransom Mfg. Co., Oshkosh, Wis.

Taylor & Fenn Co., Hartford, Conn.

Thompson Grinder Co., Springfield, Ohio

### Grinding Machines, Gage

Abrasive Mch. Tool Co., E. Providence, R. I.

### Grinding Machines, Hob

Barrie Engineering Co., Bridgeport, Conn.

### Grinding Machines, Internal

Heald Machine Co., Worcester, Mass.

Modern Tool Co., Erie, Pa.

Ott Grinder Co., Indianapolis, Ind.

Taylor & Fenn Co., Hartford, Conn.

Thompson Grinder Co., Springfield, Ohio

Whitney & Son, Baxter D., Winchendon, Mass.

Wilmart & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Oilstones

Mummert-Dixon Co., Hanover, Pa.

### Grinding Machines, Portable

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

Mummert-Dixon Co., Hanover, Pa.

Standard Electric Tool Co., Cincinnati

Stow Flexibliss Shaft Co., Philadelphia

Strand & Co., N. A., 549 Washington Blvd., Chicago

Wisconsin Electric Co., Racine, Wis.

### Grinding Machines, Snagging

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

Manhattan Machine & Tool Works., Grand Rapids, Mich.

### Grinding Machines, Surface

Abrasive Mch. Tool Co., E. Providence, R. I.

Heald Machine Co., Worcester, Mass.

La Salle Tool Co., La Salle, Ill.

Ransom Mfg. Co., Oshkosh, Wis.

Reid Brothers Co., Inc., Beverly, Mass.

Thompson Grinder Co., Springfield, Ohio

Wilmart & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Tap

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

### Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

Greenfield Machine Co., Greenfield, Mass.

Modern Tool Co., Erie, Pa.

Ott Grinder Co., Indianapolis, Ind.

Simmons Machine Co., Albany, N. Y.

Thompson Grinder Co., Springfield, Ohio

Wilmart & Morman Co., Grand Rapids, Mich.

### Grinding Wheel Dressers

Miller & Sons, Otto A., Detroit, Mich.

### Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco

Av., Chicago

Western Tool & Mfg. Co., Springfield, Ohio

### Hammers, Belt & Motor Driven

Beaudry & Co., Boston

### Hammers, Power

Nazel Engineering & Mch. Wks., Philadelphia

### Hammers, Riveting

High Speed Hammer Co., Rochester, N. Y.

Quickwork Co., St. Marys, Ohio

### Heads, Dividing

Dickow Machinery Co., Fred C., 2504 W.

Lake St., Chicago

Simmons Machine Co., Albany, N. Y.

Willard-Middletown Machine Co., Cincinnati

### Heads, Index

Dickow, Fred C., 2504 W. Lake St., Chgo.

### Hobs

Lagerholm Co., E., 9 S. Clinton St., Chicago

### Hoists, Air

Independent Pneumatic Tool Co., 600 W.

Jackson Blvd., Chicago

Northern Engineering Works, Detroit, Mich.

### Hoists, Electric

Euclid Crane & Hoist Co., Euclid, Ohio

Northern Engineering Works, Detroit, Mich.

Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Weaver Mfg. Co., Springfield, Ill.

### Hoists, Electric Traveling

Euclid Crane & Hoist Co., Euclid, Ohio

Northern Engineering Works, Detroit, Mich.

Pawling & Harnischfeger Co., Milwaukee, Wis.

### Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

### Holders and Counterbores

Manufacturers Machine Products Co., Detroit, Mich.

### Jigs, Fixtures, Tools, Etc.

Ainge Tool, Die and Machine Works, Geo H., Springfield, Ohio

Hartford Special Mch. Co., Hartford, Conn.

Hinckley Machine Works, Hinckley, Ill.

Bucher-Schmid Co., Rochester, N. Y.

Bucher-Schmid Co., Rochester, N. Y.

Day Tool & Machine Works, 8 A., New York

Way Co., A. F., Hartford, Conn.

Whiting & Comstock, Hartford, Conn.

### Joints, Universal

Ainslie Mch. & Tool Works, Hartford, Conn.

Cooper Flexible Transmission Co., Inc., Brooklyn

### Keyseating Machines

Bucher-Schmid Co., East Liverpool, Ohio

Chattanooga Mch. Co., Chattanooga, Tenn.

Davis Machine Tool Co., Rochester, N. Y.

National Machine Tool Co., Cincinnati

Whitney Mfg. Co., Hartford, Conn.

### Lathes Accessories and Attachments

Hardinge Bros., 1770 Bertrand Ave., Chicago

McCrosky Tool Corporation, Meadville, Pa.

Modern Tool Co., Erie, Pa.

Sidney Tool Co., Sidney, Ohio

Simmons Machine Co., Albany, N. Y.

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### Lathes, Bench

Blount Co., J. G., Everett, Mass.  
Hardinge Brothers, 1770 Bertrand Ave., Chicago  
Potter Tool & Machine Works, S. A.,  
79 E. 130th St., New York

### Lathes, Engine

Barnes Co., W. F. & John, Rockford, Ill.  
Candy-Otto Mfg. Co., Chicago Heights, Ill.  
Davis Machine Tool Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
Lehmanna Machine Co., St. Louis, Mo.  
Monarch Machine Tool Co., Sidney, Ohio  
Mueller Machine Tool Co., Cincinnati  
Ryerson & Son, Jos. T., Chicago  
Sidney Tool Co., Sidney, Ohio  
Willard Machine Tool Co., Cincinnati  
Wickes Bros., Saginaw, Mich.

### Lathes, Foot Power

Barnes Co., W. F. & John, Rockford, Ill.

### Lathes, Horizontal Turret

Davis Machine Tool Co., Rochester, N. Y.  
Steinle Turret Machine Co., Madison, Wis.

### Lathes, Short Cut

Sidney Tool Co., Sidney, Ohio

### Lathes, Speed and Hand

Blount Co., J. G., Everett, Mass.

### Lockers, Shelving and Cupboards, Steel

Terril's Equipment Co., Grand Rapids, Mich.

### Mandrels, Expanding

Alert Tool Co., Philadelphia  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Western Tool & Mfg. Co., Springfield, Ohio

### Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

### Measuring Devices

Van Keuren Co., The, Boston

### Metal Cutting Machines, Sheet

Quickwork Co., St. Marys, Ohio  
Ryerson & Son, Jos. T., Chicago  
Savage Co., W. J., Knoxville, Tenn.  
Way Co., A. F., Hartford, Conn.

### Microgages

Van Keuren Co., The, Boston

### Milling Attachments

Ainge Tool, Die and Machine Works, Geo. H.,  
Springfield, Ohio  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Hinckley Machine Works, Hinckley, Ill.  
Knight Machinery Co., W. B., St. Louis, Mo.  
Porter-Cable Machine Co., Syracuse, N. Y.  
Potter Tool & Machine Works, S. A.,  
79 E. 130th St., New York  
Whiting & Comstock, Hartford, Conn.  
Willard-Middletown Machine Co., Cincinnati

### Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Hardinge Brothers, 1770 Bertrand Ave., Chicago  
United States Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

### Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
United States Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

### Milling Machines, Horizontal

Beauman & Smith Co., Providence, R. I.

Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
Ryerson & Son, Jos. T., Chicago

### Milling Machines, Plain

American Milling Machine Co., Cincinnati  
Beauman & Smith Co., Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
Underwood Corp., H. B., Philadelphia

### Milling Machines, Universal

American Milling Machine Co., Cincinnati  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Cochrane-Bly Co., Rochester, N. Y.  
Ryerson & Son, Jos. T., Chicago

### Milling Machines, Vertical

Beauman & Smith Co., Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Clough, R. M., Meriden, Conn.  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
Knight Machinery Co., W. B., St. Louis, Mo.  
Taylor & Fenn Co., Hartford, Conn.

### Mills, Adjustable Hollow

Genesee Mfg. Co., Rochester, N. Y.

### Motors, Electric

Reliance Electric & Eng. Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

### Nut Facing Machines

Victor Tool Co., Inc., Waynesboro, Pa.

### Oil Cups

Gits Bros. Mfg. Co., 1940 S. Kilbourn Av.,  
Chicago  
Tucker, W. C. & F. C., Hartford, Conn.

### Oil Hole Covers

Tucker, W. C. & F. C., Hartford, Conn.

### Pattern Shop Machinery

Cochrane-Bly Co., Rochester, N. Y.  
Silver Mfg. Co., Salem, Ohio  
Towlesy Mfg. Co., John T., Cincinnati

### Pipe Bending Machines

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Pipe Cutting and Threading Machines

Bignal & Keefer Mch. Wks., Edwardsville, Ill.  
Simmons Machine Co., Albany, N. Y.

### Planer Attachment, Radius

Underwood Corp., H. B., Philadelphia

### Planer Attachment, Slotting

Moore Co., H. A., Rochester, N. Y.

### Planer Tools, Circular

Underwood Corp., H. B., Philadelphia

### Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia

Underwood Corp., H. B., Philadelphia

### Planing Machines, Metal

Fairbanks Co., The, New York

Ryerson & Son, Jos. T., Chicago

### Pneumatic Tools

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

Keller Pneumatic Tool Co., Grand Haven, Mich.

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### **Polishing and Buffing Machines**

Blount Co., J. G., Everett, Mass.  
Caneley-Otto Mfg. Co., Chicago Heights, Ill.  
New Britain Machine Co., New Britain, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Stow Flexible Shaft Co., Philadelphia  
Wilmeth & Norman Co., Grand Rapids,  
Wisconsin Electric Co., Racine, Wis. [Mich.]

### **Presses, Arbor**

Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nashua, N. H.  
Caneley-Otto Mfg. Co., Chicago Heights, Ill.  
Lourie Mfg. Co., Springfield, Ill.  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Weaver Mfg. Co., Springfield, Ill.

### **Presses, Breaching**

Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nashua, N. H.  
Lourie Mfg. Co., Springfield, Ill.

### **Presses, Foot**

Atlas Press Co., Kalamazoo, Mich.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Rockford Iron Works, Rockford, Ill.  
Taylor & Fenn Co., Hartford, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago

### **Presses, Power**

Hendley & Whittemore Co., Beloit, Wis.  
Looshbough-Jordan T. & M. Co., Elkhart, Ind.  
Rockford Iron Works, Rockford, Ill.  
Willard-Middleton Machine Co., Cincinnati

### **Presses, Punch**

Enterprise Machinery Co., 32 S. Clinton St.,  
Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Lewthwaite Co., Gen. A., 116 Walker St., N. Y.  
Lewthwaite Mfg. Co., T. H., 417 E. 31st St., N. Y.  
Looshbough-Jordan T. & M. Co., Elkhart, Ind.  
Lourie Mfg. Co., Springfield, Ill.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Rockford Iron Works, Rockford, Ill.

### **Presses, Screw**

Atlas Press Co., Kalamazoo, Mich.  
Lourie Mfg. Co., Springfield, Ill.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.  
Plets & Sons, Carl, Cincinnati  
Towsley Mfg. Co., John T., Cincinnati  
Weaver Mfg. Co., Springfield, Ill.

### **Pulley Machinery**

Avey Drilling Machine Co., Cincinnati

### **Pulleys, Iron, Solid and Split**

Enterprise Machinery Co., 32 S. Clinton St.,  
Chicago  
Pyott Dry Co., 325 N. Sangamon St., Chicago

### **Pumps, Lubricating**

Michigan Machine Co., Detroit, Mich.

### **Punch Press Fends**

Rockford Iron Works, Rockford, Ill.

### **Punch, Shear and Bender, Hand**

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago

### **Punches, Hand**

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Mfg. Co., T. H., 417 E. 31st St.,  
New York  
Whitney Metal Tool Co., Rockford, Ill.

### **Punches, Power**

Clough, R. M., Meriden, Conn.  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Ryerson & Son, Jas. T., Chicago  
Wickes Bros., Saginaw, Mich.

### **Punches and Dies**

Ainge Tool, Die and Machine Works, Geo. H.,  
Springfield, Ohio  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mfg. Co., T. H., 417 E. 31st St.,  
Rockford Iron Works, Rockford, Ill. IN. Y.

### **Quenching Bath**

Bennett Metal Treating Co., Elmwood, Conn.

### **Racks, Bar Stock**

New Britain Machine Co., New Britain, Conn.

Yohé Supply Co., Wm. S., Canton, Ohio

### **Reamer Holder, Floating**

Victor Tool Co., Inc., Waynesboro, Pa.

### **Reamers, Adjustable**

Cashman Tool Co., Waynesboro, Pa.  
Clough, R. M., Meriden, Conn.  
McCrosky Tool Corporation, Meadville, Pa.

### **Reamers, Cylinder**

Hinckley Machine Works, Hinckley, Ill.  
McCrosky Tool Corporation, Meadville, Pa.

### **Reamers, Solid**

Clough, R. M., Meriden, Conn.  
Cogdill Manufacturing Co., Detroit, Mich.  
Lagerholm Co., E., 9 S. Clinton St., Chicago  
McCrosky Tool Corporation, Meadville, Pa.  
Ready Tool Co., Bridgeport, Conn.

### **Reels, Extension**

Cincinnati Specialty Mfg. Co., Cincinnati

### **Riveting Machines**

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
High Speed Hammer Co., Rochester, N. Y.  
Independent Pneumatic Tool Co., 800 W.  
Jackson Blvd., Chicago

### **Rod Cutters**

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Av., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Gen. A., 116 Walker St., N. Y.  
Lewthwaite Mfg. Co., T. H., 417 E. 31st St., N. Y.  
Tucker, W. C. & F. C., Hartford, Conn.

### **Roller Bearings**

Graham Co., The, 23 Flatbush Ave., Brooklyn,  
New York

### **Scraping Machines, Pneumatic**

Anderson Brothers Mfg. Co., Rockford, Ill.

### **Screw Driving Machines, Automatic**

Reynolds Machine Co., Mansfield, Ohio

### **Screw Machines, Automatic**

Brown & Sharpe Mfg. Co., Providence, R. I.  
National Acme Company, Cleveland  
New Britain Mfg. Co., New Britain, Conn.

### **Screw Machines, Plain or Hand**

Potter Tool & Machine Works, S. A.,  
79 E. 130th St., New York

### **Screws, Cap and Set**

National Acme Company, Cleveland

### **Second-Hand Machinery Dealers**

Bennett Machinery Co., G. L., 39 Church  
St., New York  
Bertoletti Co., Chester, Cincinnati

Bertoletti Mfg. Tool Co., Jersey City, N. J.  
Brown-McDonald Mch. Co., St. Louis, Mo.  
Brownell Machinery Co., Providence, R. I.  
Dale Machinery Co., Inc., 541 Washington  
Bvd., Chicago

Enterprise Machinery Co., 32 S. Clinton St.,  
Chicago

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- Second-Hand Mchy. Dealers—Cont'd**
- Empire Machinery Exchange, Cleveland  
 Esley Machinery Co., E. L., 555 Washington Blvd., Chicago  
 Federal Mchy. Sales Co., 12 N. Jefferson St., Chicago  
 Fitzgerald & Co., W. H. J., Boston, Mass.  
 Graves Mchy. Exch., 59 Church St., New York  
 Harris Bros. Co., W. 35th & Iron, Chicago  
 Hill, Clarke & Co., 825 Wash'tn Bl., Chicago  
 Hess-Schenck Company, Cleveland  
 Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.  
 Jones Machine Tool Co., Cincinnati  
 Kemp Machinery Co., Baltimore, Md.  
 Lucas & Son, Inc., J. L., Bridgeport, Conn.  
 Lynd-Farquhar Co., Boston, Mass.  
 McCauley Lathe & Machinery Corp., J. J., 149 Broadway, New York  
 McCoy-Brandt Mchy. Co., Pittsburgh, Pa.  
 McDonald Machinery Co., St. Louis  
 McMullen Mchy. Co., Grand Rapids, Mich.  
 Machine Tool Engineering Co., Inc., 149 Broadway, New York  
 Marshall & Buschart Machinery Co., 17 S. Jefferson St., Chicago  
 Molitor Mchy. Co., Chas., 215 S. Clinton St., Chicago  
 Morton Machinery Co., Philadelphia  
 Motch & Merryweather Mchy. Co., Cleveland  
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 Orratt & Co., D. C., Cleveland  
 Parker Co., Frank H., 911 First National Bank Bldg., Chicago  
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 Reliance Machinery Sales Co., Pittsburgh  
 Romaine Mchy. Co., W. L., Milwaukee, Wis.  
 Russell Machine Co., Pittsburgh, Pa.  
 Kjernan & Son, Jos. T., Chicago  
 Simmonds Machine Co., Albany, N. Y.  
 Stocker-Rumely-Wach Co., 117 N. Jefferson St., Chicago  
 Strong, Carlisle & Hammond Co., Cleveland  
 Syracuse Supply Co., Syracuse, N. Y.  
 Toomey Inc., Frank, Philadelphia  
 Tubor, Velick & Co., 631 W. Lake St., Chicago  
 Vonnegut Machinery Co., Indianapolis, Ind.  
 Walsh Machinery Co., M. J., Milwaukee, Wis.  
 Warner, H. D., Hartford, Conn.  
 Wayne Mchy. Co., Fred Wayne, Ind.  
 Webb Machinery Co., R. M., Cleveland  
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- Shafts, Flexible**  
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- Shafts, Steel**  
 American Hollow Boring Co., Erie, Pa.
- Shaper Attachment**  
 Moore Co., H. A., Rochester, N. Y.
- Shaping Machines**
- Cochrane-Bly Co., Rochester, N. Y.  
 Columbia Machine Tool Co., Hamilton, Ohio  
 Davis Machine Tool Co., Rochester, N. Y.  
 Fairbanks Company, The, New York  
 Milwaukee Shaper Co., Milwaukee, Wis.  
 Osborne & Sexton Mchy. Co., Columbus, O.  
 Rhodes Mfg. Co., Hartford, Conn.  
 Sellow Machine Tool Co., Pawtucket, R. I.  
 Simmonds Machine Co., Albany, N. Y.  
 Smith & Mills Co., Cincinnati
- Shears, Hand**
- Armstrong-Ellm Mfg. Co., 341 N. Francisco Av., Chicago  
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 Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
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 Whitney Metal Tool Co., Rockford, Ill.
- Shears, Power**
- Hendley & Whittmore Co., Beloit, Wis.  
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 Ryerson & Son, Jas. T., Chicago
- Sine Bars**  
 Way Co., A. F., Hartford, Conn.
- Slotting Attachment for Planer and Shaper**  
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- Slotting Machines**
- Clough, R. M., Meriden, Conn.  
 Rhoden Mfg. Co., Hartford, Conn.  
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- Sprockets**  
 Culiman Wheel Co., 1344 Altgeld St., Chicago
- Steel, High Speed**  
 Herbert, Ltd., Alfred, 54 Day St., New York
- Steel, Tool**  
 Herbert, Ltd., Alfred, 54 Day St., New York
- Stock Supports**
- Way Co., A. F., Hartford, Conn.  
 Will-Burt Company, Orrville, Ohio
- Straightening Machines**
- Pieta & Sons, Carl, Cincinnati  
 Towseay Mfg. Co., John T., Cincinnati  
 Whitney Metal Tool Co., Rockford, Ill.
- Swaging Machines**
- Etna Mfg. Co., Toledo, Ohio
- Tables, Circular**
- Cochrane-Bly Co., Rochester, N. Y.  
 Hinckley Machine Works, Hinckley, Ill.  
 Lewthwaite Co., Geo. A., 116 Walker St., N. Y.
- Tap Extractors**  
 Walton Co., Hartford, Conn.
- Tap Wrenches**  
 Alert Tool Co., Philadelphia
- Tapping Machines and Attachments**
- Avery Drilling Machine Co., Cincinnati  
 Beaman & Smith Co., Providence, R. I.  
 Bicknell-Thomas Co., Greenfield, Mass.  
 Burke Machine Tool Co., Conneaut, Ohio  
 Fenn Mfg. Co., Hartford, Conn.  
 Crosley Tool Corporation, Meadville, Pa.  
 Modern Tool Co., Erie, Pa.  
 Rickert-Shafer Co., Erie, Pa.  
 Taylor-Shantz Co., Rochester, N. Y.  
 Turner Machine Co., Danbury, Conn.  
 Whitney Mfg. Co., Hartford, Conn.  
 Whitney Metal Tool Co., Rockford, Ill.  
 Workwell Eng. & Mfg. Co., 116 W. Monroe St., Chicago
- Taps, Collapsing**
- Modern Tool Co., Erie, Pa.  
 Murchey Machine & Tool Co., Detroit, Mich.  
 Victor Tool Co., Inc., Waynesboro, Pa.
- Taps and Dies**
- National Acme Company, Cleveland  
 Victor Tool Co., Inc., Waynesboro, Pa.
- Threading Tools**
- Armstrong Bros. Tool Co., 305 N. Francisco Av., Chicago  
 Modern Tool Co., Erie, Pa.  
 Murchey Machine & Tool Co., Detroit, Mich.  
 National Acme Company, Cleveland  
 Ready Tool Co., Bridgeport, Conn.
- Tool Holders**
- Armstrong Bros. Tool Co., 305 N. Francisco Av., Chicago  
 Cleveland National Mch. Co., Cleveland  
 Ready Tool Co., Bridgeport, Conn.  
 Rigid Tool Holder Co., Washington, D. C.  
 Western Tool & Mfg. Co., Springfield, Ohio

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### Tools, Boring

Alert Tool Co., Philadelphia  
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B. & W. Tool & Die Co., Cleveland  
Rigid Tool Holder Co., Washington, D. C.

### Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Ready Tool Co., Bridgeport, Conn.

### Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Brown & Sharpe Mfg. Co., Providence, R. I.

### Tools, Spot Facing

Genesee Mfg. Co., Rochester, N. Y.

### Tooth Rounding Machines

Cross Gear & Engine Co., Detroit, Mich.

### Trucks, Machine Shop

Fairbanks Company, The, New York  
New Britain Machine Co., New Britain, Conn.  
Towlesy Mfg. Co., John T., Cincinnati

### Turntables

Canton Foundry & Machine Co., Canton, O.

### Valves

Fairbanks Company, The, New York  
Powell Co., Wm., Cincinnati

### Valve Seat Planing Machines, Portable

Stow Flexible Shaft Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Vises, Drilling Machine

Ainslie McHe. & Tool Works, Hartford, Conn.  
Armstrong-Blum Mfg. Co., 341 N. Francisco  
Av., Chicago  
Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Carter & Hakes McHe. Co., W. Winsted, Conn.  
Germanow-Simon Machine Wks., Rochester  
Thomas Elevator Co., 31 So. Hoyne Ave.,  
Chicago

### Vises, Machinists'

Hollands Tool Co., Erie, Pa.  
New Britain Machine Co., New Britain, Conn.  
Western Tool & Mfg. Co., Springfield, Ohio

### Vises, Milling Machine

Carter & Hakes McHe. Co., W. Winsted, Conn.  
Cochrane-Bly Co., Rochester, N. Y.  
Edlund Machinery Co., Inc., Cortland, N. Y.  
Germanow-Simon Machine Wks., Rochester  
Hardinge Brothers, 1770 Bertrand Av., Chicago  
Hartford Special Mch. Co., Hartford, Conn.  
Sollie Machine Tool Co., Pawtucket, R. I.

### Vises, Shaper

Columbia Machine Tool Co., Hamilton, Ohio

### Wood Working Machinery

Hendley & Whittemore Co., Beloit, Wis.  
New Britain Machine Co., New Britain, Conn.  
Silver Mfg. Co., Salem, Ohio  
Towlesy Mfg. Co., John T., Cincinnati  
Whitney & Son, Baxter D., Winchendon, Mass.

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THE WM. POWELL CO.

1200 DRAPER ST.

CINCINNATI, O.

# Automatic Magazine Fed Screw Driving Machines

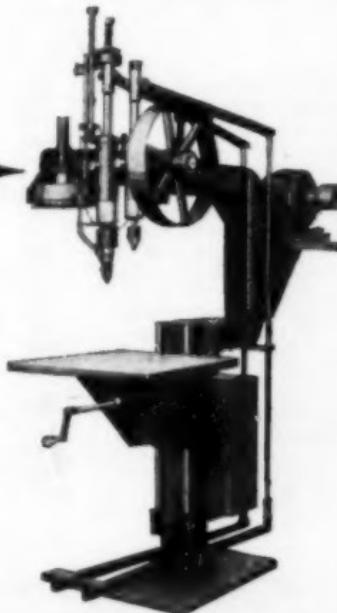
## At a Material Reduction in Price

In line with the spirit of the times, we have made such substantial price reductions on Reynolds Power-Driven, Magazine-Fed Screw Driving Machines, that you simply cannot afford to drive screws any longer by costly man power—the most expensive power there is.

Dump a gross or  
more of machine  
screws here →

Then press a foot lever,  
and the machine auto-  
matically magazines screws  
and drives them to de-  
sired depth with me-  
chanical precision.

Several Styles and Sizes  
for all requirements  
What are YOUR needs?



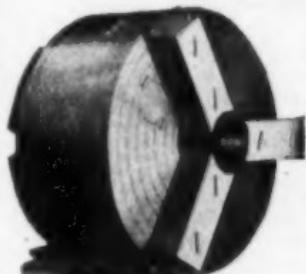
THE REYNOLDS AUTOMATIC enables one unskilled operator to drive 8,000 to 10,000 ordinary machine screws a day, as well as hex-head, square-head and fillister-head cap screws. You can figure your own saving.

Tell us the dimensions over all of your work, and the gauge and length of the screws you are driving, and we will recommend, describe and quote on the right machine for your requirements.

**The Reynolds Machine Company**  
Dept. H. H., Massillon, Ohio

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(Patented Mar 25, 1920)

# Three Jaw Mfg. Type

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Nothing could be simpler than the construction and operation of the Lavoie Air Chuck. Is attached directly to main spindle, and is without gears of any kind. Lavoie

## Air Operated

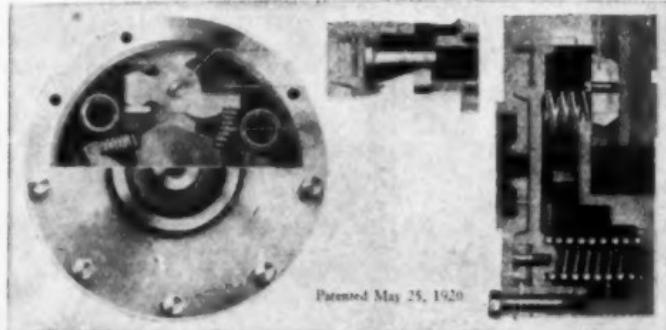
Chucks can be attached and removed as quickly as an ordinary chuck. Only a thin film of air is required to operate the single acting piston, and the operating mechanism of the jaws is such that the heaviest cuts may be taken with moderate air pressure. Write

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THE FRONTIER CHUCK & TOOL CO., Inc.

30 Letchworth St.,

BUFFALO, N. Y.



Patented May 25, 1920

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# No! Terrell's Steel Lockers

Are NOT too good for YOU



## *Because—*

- (1) The best service is always an economy.
- (2) Neatness begets neatness, which means a better shop output.
- (3) They add to the pride of the workmen—pride in themselves, in their plant and in their work.
- (4) They keep their contents clean, away from vermin, as well as safe from meddlers and thieves.
- (5) They are permanent, saving renewals and repairs; they are fire-proof; they lower insurance costs, etc., etc.

No, they are *not* too good for you, whether you need a half dozen or a gross. One source of economy is that you may put in only what you need, whether a few or many, and rearrange and add to them later, without destroying or tearing down anything, and always have a symmetrical locker system of the first class—it can grow with your growth. And they may not cost as much as you think.

*Put your needs up to us, without obligation  
Your purchase will be only at your pleasure*

**Terrell's Equipment Company**

Hall & Division Sts., Grand Rapids, Mich.

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**Weigel  
Single-Wheel  
"Kwality Kaster"**

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

**Double-Wheel  
"Trukaster"**

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

**Write for Price List**

**THE HAMILTON  
CASTER & MFG. CO.  
HAMILTON, OHIO**

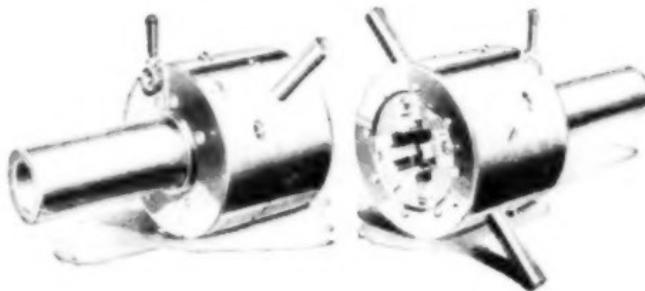






# **MODERN**

## **Self-Opening Die Heads**



"On-The-Job-Modern" would be a good name for our die head, because it is so dependable, so simple, and so strong. It's a stranger, almost, to the tool room and adjustment idleness. It's a real producer.

*Send for our latest bulletin—17 sizes.*

## **MODERN TOOL CO.**

MAIN OFFICE AND WORKS      ERIE, PA.      SECOND AND PEACH STS.

*Branch Offices:*

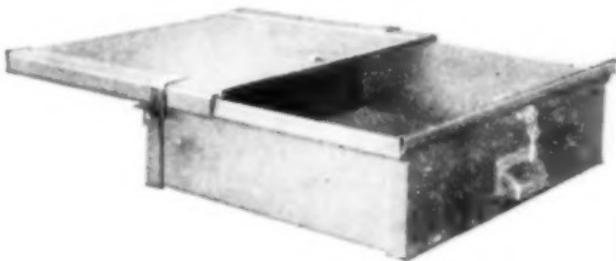
NEW YORK  
PHILADELPHIA

CHICAGO  
CLEVELAND

DETROIT  
BUFFALO

# The "New Britain" All-Steel Bench Drawer

A Drawer that's Unbreakable  
That is Light for its Strength  
That Moves Freely and Never Binds  
That Keeps Out Pilferers, Water and Oil



Furnished as a unit, it requires no fitting or cutting of bench. Shipping weight, only 40 pounds.

A hem of triple thickness around the upper edge and the welding of all joints provide great strength and durability. The slide ways are integral with the top and insure a smooth, free movement, without tendency to bind.

A solid sheet metal top makes impossible any pilfering from the rear. It also prevents blocking or a lock-out through wedging of contents, and keeps out any water or oil that might soak through from above.

Folder No. 1202-A describes it fully. We also make a Frictionless Type Bench Drawer, with wooden back, bottom and front, which some prefer, shown in Folder 1202. Write for either or both.

**The New Britain Machine Company**  
"Shop Furniture  
Originators"  New Britain,  
Conn. U.S.A.

